ROCK CREEK / MUDDY CREEK RESERVOIR

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FINAL
ENVIRONMENTAL IMPACT STATEMENT

MUDDY CREEK
THE PREFERRED ALTERNATIVE

United States Forest Service
Rocky Mountain Region
Lakewood, Colorado

Bureau of Land Management
Colorado State Office
Lakewood, Colorado

FEBRUARY 1990

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United States Department of Interior | Bureau of Land Management | United States Department of Agriculture | Forest Service

Reply to: 1950 (FS)/1790 (BLM)

Date:

Dear Reader:

Enclosed for your review is the Final Environmental Impact Statement (EIS) for the proposed Rock Creek and Muddy Creek Reservoirs. The Final EIS includes a proposed amendment to the Bureau of Land Management's Kremmling Resource Management Plan (RMP). This Final EIS is published in an abbreviated format and is designed to be used in conjunction with the Supplemental Draft EIS which was released in August, 1988 (Notice of Availability was published in the Federal Register August 11, 1988).

Muddy Creek is the federal agencies' (Bureau of Land Management and Forest Service) preferred alternative. This alternative calls for the construction of a 60,000 acre-foot reservoir at a site located about four miles north of Kremmling, Colorado, in Grand County. The dam site lies on public land administered by the Bureau of Land Management, but much of the reservoir basin is in private ownership.

Since the two proposals for a reservoir affect lands administered by two different federal agencies (Muddy Creek by the Bureau of Land Management, Rock Creek by the Forest Service) and since the regulations governing the two agencies are different, separate processes are being followed by each agency in making and issuing decisions related to these proposals. The Forest Service will only make decisions pertaining to the proposed Rock Creek Reservoir. The Bureau of Land Management will only make decisions pertaining to the proposed Muddy Creek Reservoir.

The Forest Service will issue a Record of Decision with the Final Environmental Impact Statement. This decision is subject to review in accordance with 36 CFR 217.6. A request for review must be filed with the Chief, US Forest Service, P.O. Box 96090, Washington, DC 20250 within 45 days from the day after the decision is published.

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The Forest Service will reconsider water storage possibilities, including Rock Creek Reservoir, when the Routt National Forest Land and Resource Management Plan is updated (i.e., - "Forest Plan Revision") within the next 4 to 5 years.

As stated above, Muddy Creek is the federal agencies' preferred alternative. Implementation of this alternative requires amending the Bureau of Land Management's Kremmling RMP. The required amendment changes the management emphasis from a livestock, wildlife and water quality management priority to a recreation priority. The amendment is incorporated in the Final EIS and is a refinement of the Preferred Alternative (Muddy Creek) in the Supplemental Draft EIS. The refinements include rewording for clarification, corrections, and minor changes made in consideration of public comments. Approval of the Plan Amendment will facilitate consideration of the right-of-way grant application.

Any person who participated in this plan amendment process and has an interest which is or may be adversely affected by the Amendment of the Resource Management Plan may protest in accordance with the planning regulations, 43 CFR 1610.5-2. Protests shall be in writing and sent to the Director (760), Bureau of Land Management, Room 909, Premier Building, 1725 I Street, N.W., Washington, D.C. 20240, within 30 days of the date of publication of the Notice of Availability by the U.S. Environmental Protection Agency in the Federal Register. The protest shall include the following information:

The name, mailing address, telephone number, and interest of the person filing the protest.

A statement of the issue or issues being protested.

A statement of the part or parts of the plan amendment being protested.

A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party, or an indication of the date the issue or issues were discussed for the record.

A concise statement explaining why the proposed decision is believed to be wrong.

At the end of the 30 day protest period, and after the Governor's consistency review, the Proposed Plan Amendment, excluding any portions under protest, shall become final. Approval shall be withheld on any portion of the Proposed Plan under protest until final action has been completed on such protest. The Record of Decision and Final Resource Management Plan Amendment will then be published.

In addition to decisions made by each of the land management agencies, the Bureau of Reclamation is the agency responsible for making decisions pertaining to water exchanges which are necessary to implement either proposed reservoir.

If you have any questions, please contact Dave Harr of the BLM by phone at (303) 724-3437 or by mail at Kremmling Resource Area, P.O. Box 68, Kremmling, CO 80459, or else contact Larry Keown of the Forest Service by phone at (303) 879-1722 or by mail at Routt National Forest, 29587 West U.S. 40 - Suite 20, Steamboat Springs, CO 80487.

GARY CARGILL
Regional Forester, R-2
Forest Service

H. ROBERT MOORE
State Director
Bureau of Land Management

Enclosures

RPOPE/wrp

CC: D.Harr, Kremmling BLM
R.George, Yampa District-Routt NF
R.Pope, Routt NF
M.Haegele, Bur. of Rec.
P.Lagasse, Resource Consultants Inc.
D.Merritt, Col. River Water Cons. District

RECORD OF DECISION

Rock Creek/Muddy Creek
Final Environmental Impact Statement

USDA Forest Service
Routt National Forest
Routt and Grand Counties, Colorado

On April 3, 1985, the Colorado River Water Conservation District (River District) applied to the Forest Service for a Special Use Permit for the construction of a water storage reservoir on Rock Creek in the Yampa Ranger District of the Routt National Forest. The Rock Creek Reservoir application was developed to comply with an Intergovernmental Agreement which satisfies the requirements of a Colorado Supreme Court ruling. This ruling required the River District to pursue a water storage reservoir to mitigate potential harm to water users within the Upper Colorado River Basin resulting from construction of the Windy Gap project. In response to this application, the Forest Service initiated an environmental analysis which is documented in this environmental impact statement. In this analysis, another alternative reservoir site, Muddy Creek, was identified and evaluated. Since Muddy Creek is located on lands administered by the Bureau of Land Management (BLM), the BLM became a co-lead agency in the environmental analysis. A Draft Environmental Impact Statement (EIS) was prepared and circulated for public comment in August 1987.

Since the two proposals for a reservoir affect lands administered by two different federal agencies (Muddy Creek by the Bureau of Land Management, Rock Creek by the Forest Service) and since the regulations governing the two agencies are different, separate processes are being followed by each agency in making and issuing decisions related to these proposals. The Forest Service will only make decisions pertaining to the proposed Rock Creek Reservoir. The Bureau of Land Management will only make decisions pertaining to the proposed Muddy Creek Reservoir.

In addition to decisions made by each of the land management agencies, the Bureau of Reclamation is the agency responsible for making decisions pertaining to water substitutions which are necessary to implement either proposed reservoir. They will issue their decision at a later time.

After further analysis, including consideration of comments received from the public and cooperating agencies, the Forest Service and BLM selected a modified Muddy Creek alternative as the Federal Agencies' preferred alternative. The Federal Agencies' preferred alternative differed somewhat from the Muddy Creek alternative described in the Draft EIS and a reservoir constructed on Muddy Creek would require amendment of the BLM's Kremmling Resource Management Plan. These changes led the two agencies to conduct additional environmental analysis. A Revised Notice of Intent to prepare a Supplemental Draft EIS was issued by the Forest Service and published June 21, 1988, in the Federal Register. Notification of availability of the Supplemental Draft EIS was published in the Federal Register on August 11, 1988.

In May, 1988, the River District applied to the BLM for a Right-of-Way to construct a dam and reservoir on Muddy Creek Site C (the Federal Agency preferred alternative).

After carefully considering comments from the public and government agencies, a Final Environmental Impact Statement was prepared and is issued here.

Environmental Issues Involved in Any Action

Seven major issues have been raised in conjunction with any proposed action which might be taken to mitigate the Windy Gap Project and to provide Denver and Western Slope with a supply of water:

Water - Any proposed water storage project would alter the normal flow of water in streams. This change in flow could affect stream channel stability, morphology, and equilibrium. The Forest Service founding legislation ("Organic Administration Act of 1897", 16 USC 473-475, 477-482, 551) requires the Forest Service to protect favorable conditions of water flow on National Forest System lands.

In addition, any water storage project could impact chemical and physical water quality conditions during and after construction. If the actions are not properly designed, planned or mitigated chemicals such as oil and physical contaminants such as sediment could be induced into streams; particularly during construction.

Impoundment of water, particularly on soils containing salts, can increase salinity levels in the water. Reduced stream flows can result in less water being available to dilute salts already in the system. Subsequent use of this water can adversely affect crop production and long term soil productivity.

Engineering - Dam safety, flood risk, and seismicity are always of concern when dealing with water storage projects.

Several of the alternatives considered could inundate existing roads, power lines, or buildings and increased traffic during construction and later from recreationists could cause safety problems and traffic congestion.

Improper location, development and reclamation of materials borrow sources could result in traffic problems, safety hazards, reduced long-term soil productivity, and impaired visual quality.

Soils - Any action taken to store water could impact or be impacted by soils on the site. Moderate to high salt concentrations in soils on the site could raise salinity levels in the impounded water, compaction and/or erosion could lead to a long-term loss in soil productivity if the projects are not carefully designed and properly implemented, and recreational use could result in soil compaction and/or erosion.

Another general area of concern related to soils is shoreline stability. Wave action can cause high amounts of erosion in some soils.

Wildlife/Vegetation - Water storage projects can greatly affect many species of wildlife and vegetation. Reservoirs can form barriers or safety hazards to migrating big game, can inundate critical wildlife habitat such as critical winter range or wetlands, or can displace wildlife into areas where they cause property damage or are a safety hazard. In addition, recreational use associated with reservoirs can exaggerate these effects on wildlife.

In addition, threatened, endangered or rare plants and animals can be adversely affected by the water storage projects. They can be directly affected (e.g. inundation) or indirectly affected by users and recreationists.

Fishery - Water storage projects can create or destroy fisheries. Reservoirs frequently result in changes to the type of fishery. For instance, a high quality stream fishery might be replaced with a flat water fishery or a low quality or nonexistent fishery might be replaced with a flat water fishery and a moderate or high quality tail water fishery. In addition, water storage projects can adversely impact critical fish habitat such as spawning or rearing areas. This might change a self-sustaining fishery to one requiring stocking or vis versa. All these types of changes could lead to changes in the type and amount of recreational use of the fishery.

Recreation Activities/ Affects on Adjacent Landowners - Because so many recreational and social activities are associated with water, any water storage project could lead to changes in these activities. Cultural resources could be inundated or modified water releases could impact recreational activities such as fishing and river rafting. A strong visual focal point could be created or dam construction activities and operational facilities could damage visual quality. Inundation of important portions of ranches could impair the viability of the entire ranching operation. A new recreational facility could lead to development of adjacent private lands.

Economic - Project construction, operation, and mitigation costs can vary significantly from project to project. This would impact the efficiency and economic viability of these projects.

Alternative Courses of Action

Six alternative ways of carrying out the proposed actions and one alternative of taking No Action were developed and considered in the environmental analysis process. These alternatives included taking no action, Rock Creek Reservoir, Muddy Creek Reservoir, Azure project alternatives, enlargement of existing reservoirs, or other reservoir sites. Three of the action alternatives were investigated, but eliminated from further consideration at various stages of environmental analysis because:

- they did not provide approximately the same water yield as anticipated in the Intergovernmental Agreement (approximately 20,000 acre-feet),
- the total project cost and cost per acre-foot of water yield was not reasonable in relation to the Azure-Windy Gap Supplement Agreement (Agreement covers about $10,200,000 of the cost - see Section 1.2.2 of the Final EIS), or
- the project was not located within a reasonable proximity of Windy Gap, the project being mitigated.

The three alternatives the interdisciplinary team and I considered in detail are as follows:

Alternative 1 - No Action

In this alternative, no mitigation for the Windy Gap Project would be implemented nor would a supply of water for Colorado be developed. The Forest Service would not issue a Special Use Permit for a reservoir on Rock Creek and the BLM would not issue a Right-of-Way for a reservoir on Muddy Creek.

Alternative 2 - Rock Creek Reservoir

This alternative calls for the construction of a roller compacted concrete gravity dam that would rise 172 feet above the streambed of Rock Creek. The Rock Creek site is located where Rock Creek enters a narrow valley on the Routt National Forest just south of Highway 134 and west of Gore Pass. This dam would impound 50,700 acre-feet of water covering 1,070 acres. The lake would extend about 3 miles upstream from the dam.

Mitigation that would be required with this alternative is described on pages 5-2 to 5-17 of the Supplemental Draft EIS.

Alternative 3 - Muddy Creek Reservoir

Under this alternative, a zoned, earthfill dam would be constructed on Public Lands administered by the BLM located about four miles north of Kremmling. Although the dam site is located on Public Lands, much of the reservoir basin is privately owned. The proposed dam would rise 120 feet above the streambed and would impound 60,000 acre-feet covering 1,447 acres of land. The lake would extend about 5.5 miles upstream from the dam.

This alternative was initially developed and described in the Draft EIS as a 47,000 acre-foot reservoir located at Muddy Creek Site C. This was upsized to 60,000 acre-feet in the Supplemental Draft EIS (now the Federal Agencies' preferred alternative) because a larger reservoir would be more cost-efficient and because the upsizing would cause little additional environmental impact.

Mitigation for this alternative is described in the Final EIS.

Environmentally Preferred Alternative

Alternative 1, the No Action alternative is the least disruptive to the environment.

The Forest Service Decision

The four decisions I am making are:

1) to recommend to the Bureau of Land Management selection of the Muddy Creek Alternative,
2) to not issue the Special Use Permit for Rock Creek in favor of a more suitable alternative located on BLM and private lands on Muddy Creek,
3) to conduct further measurements and analysis using the most current technology should the Rock Creek site ever be reconsidered for a reservoir, and
4) to reevaluate water storage possibilities, including Rock Creek Reservoir, when the Routt National Forest Plan is updated (Forest Plan "Revision") in four to five years.

I have chosen to take these actions for the reasons described below:

Reasons for This Decision

- The No Action alternative does not address the Colorado River Water Conservation District's need to compensate for the Windy Gap project and does not address Colorado's present and future water needs.

- Both Muddy Creek and Rock Creek fulfill the needs to mitigate the Windy Gap project and provide water for Colorado.

- Construction of a reservoir at Rock Creek would result in an unavoidable loss of a high quality stream fishery compared to the establishment of a potential fishery at Muddy Creek.

- Muddy Creek would result in the loss of 892 acres of wetland comprised of 210 acres of undisturbed natural wetland and 682 acres of man-affected wetland whereas Rock Creek would destroy 486 acres of high quality wetland.

- Any changes from the post-project stream flows used in this EIS for Rock Creek which might result from reanalysis using the most current methodology would not significantly alter the environmental impacts disclosed in the EIS.

- Neither Muddy Creek or Rock Creek would result in unacceptable significant unavoidable adverse impacts relative to the major issues including water, engineering, soils, wildlife/ vegetation, recreation/social or economic. These impacts are described in more detail in the following section.

The Effect of this Decision on the Issues

The major impacts of implementing the proposed Rock Creek and Muddy Creek Reservoirs considered in selecting a preferred alternative are summarized in Table 1.3 of the Final EIS.

- No significant adverse impacts on stream channel stability, water quality, and downstream salinity would result from implementation of either Rock Creek or Muddy Creek.

  The Forest Service founding legislation ("Organic Administration Act") requires the Forest Service to protect favorable conditions of water flow on National Forest System lands. When this analysis began four years ago, a modified *Meyer-Peter/Muller* (MPM) method was used in the environmental analysis of this project proposal to estimate the instream flow requirements because it was among the best methods available at the time (See FEIS discussion). However, in order to ensure our ability to maintain favorable conditions of flow, we in the Forest Service now feel we need to go beyond the use of this estimation method and require exact methods of analysis which depend upon actual field measurements. If the Rock Creek site is ever considered for a reservoir again, further measurements and analysis will need to be made to

determine instream flow requirements. Although I do not know the exact instream flow required, I anticipate that requiring such a flow would not significantly alter the environmental effects disclosed in this EIS. Therefore, instream flow effects were not a significant factor for making my decision.

- The environmental analysis conducted for this EIS concluded that with appropriate mitigation, no significant adverse impacts to cultural resources, facilities, or vegetation will result from implementing either Rock Creek or Muddy Creek.

- Some farmlands of State and local importance would be lost if Muddy Creek were implemented. Otherwise, the environmental analysis conducted for this EIS concluded that no significant adverse affects to the soils resource would result from implementing either Rock Creek or Muddy Creek.

- All significant impacts to the only threatened, endangered or rare plant or animal species known to be affected by the proposed Rock Creek or Muddy Creek projects (the plant Osterhout's Milkvetch at Muddy Creek and the impact of either site on 3 endangered fish (Colorado squawfish, humpback chub, and bonytail chub) in the lower Colorado) are fully mitigated.

- Wildlife could be adversely affected by either project. Implementation of extensive mitigation would eliminate most adverse impacts at both sites. There would still be a loss of some summer habitat capability at Rock Creek and possibly some loss in winter habitat capability at Muddy Creek.

- Wetlands would be destroyed by implementation at either site. At Muddy Creek much of the existing wetland is in poor condition, whereas at Rock Creek, most of it is very high quality. Although the amount of wetland at Rock Creek is less than that at Muddy Creek, the high quality of the wetlands at Rock Creek would make them more of a loss than those at Muddy Creek. This was a significant factor in the decision to select Muddy Creek as the Federal Agencies' preferred alternative.

- The quality of the existing fishery was another significant issue. At present, there is a very poor to nonexistent fishery in Muddy Creek. In Rock Creek, however; there is a high quality stream fishery that is important to many Forest users. Impoundment of Muddy Creek could create a flat water fishery and possibly even a tailwater fishery where no fishery exists today. At Rock Creek, the existing high quality stream fishery would be replaced with a low to moderate quality reservoir fishery. The unavoidable loss of this important high quality recreational experience was a significant factor in the decision to select Muddy Creek as the Federal Agencies' preferred alternative.

- Another issue of importance to many in the general vicinity of Rock Creek and Muddy Creek is the beneficial impact of such a reservoir on the local economies. Based on the environmental analysis conducted, there would not be a significant difference in the impacts of Rock Creek compared to Muddy Creek. Rock Creek would be slightly more cost-efficient to construct and operate.

Implementation and Request for Review

This decision may be implemented 30 days from the date that Environmental Protection Agency's Notice of Availability of the Final EIS appears in the Federal Register.

In accordance with 40 CFR 1508.27, this decision constitutes no significant impact on the human environment.

This decision is subject to review in accordance with the provisions of 36 CFR 217.6. A request for review must be filed with the Chief, Forest Service, P.O. Box 96090, Washington, D.C., 20250, within 45 days from the day after the notice of this decision is published.

For further information contact Larry Keown, Land Management Planning Staff Officer, by telephone at (303) 879-1722 or by writing Routt National Forest, 29587 West U.S. 40 - Suite 20, Steamboat Springs, Colorado 80487.

Gary E. Cargill

GARY CARGILL
Regional Forester, Rocky Mountain Region
11177 W. 8th Avenue
Lakewood, Colorado 80225

DATE

FINAL ENVIRONMENTAL IMPACT STATEMENT AND RESOURCE MANAGEMENT PLAN AMENDMENT FOR ROCK CREEK/MUDDY CREEK RESERVOIR ROUTT AND GRAND COUNTIES, COLORADO

Co-Lead Agencies:	USDI - Bureau of Land Management USDA - Forest Service
Cooperating Agencies:	USDI - Fish and Wildlife Service USDI - Bureau of Reclamation U. S. Army Corps of Engineers Colorado Division of Wildlife
Responsible Official:	State Director Bureau of Land Management Colorado State Office 2850 Youngfield Lakewood, CO 80215 Gary Cargill, Regional Forester Rocky Mountain Region USDA Forest Service 11177 W. 8th Avenue Lakewood, CO 80225
For further information, contact:	Area Manager Bureau of Land Management Kremmling Resource Area 1116 Park Avenue Kremmling, CO 80459 (303) 724-3437 Jerry Schmidt, Forest Supervisor Routt National Forest 29587 West U. S. Hwy 40, Suite 20 Steamboat Springs, CO 80487 (303) 879-1722

ABSTRACT

This Final Environmental Impact Statement (FEIS) represents the culmination of a four-year effort undertaken to disclose impacts and develop mitigation for the proposed construction of a water storage reservoir on either Rock Creek in the Yampa Ranger District, Routt National Forest, or Muddy Creek in the Bureau of Land Management (BLM) Kremmling Resource Area. The Draft EIS was issued in August 1987 and a Supplemental Draft EIS was issued in August 1988. The preferred alternative is a 60,000 acre-foot reservoir at site C on Muddy Creek. The environmentally preferred alternative is the no-action alternative. A BLM Right-of-Way for the Muddy Creek site would require amendment of the Kremmling Resource Management Plan to accommodate recreational use of Muddy Creek Reservoir. Implementation of the proposed action would require the Secretary of the Interior (through the Bureau of Reclamation) to execute an agreement providing for water substitution between Muddy Creek Reservoir and Green Mountain Reservoir. This FEIS discloses the potential impacts and proposed mitigation and conservation measures for these federal actions.

Protests must be received within 30 days of the date of publication of the Notice of Availability by the U. S. Environmental Protection Agency in the Federal Register.

SUMMARY
ROCK CREEK/MUDDY CREEK RESERVOIR
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND RESOURCE MANAGEMENT PLAN AMENDMENT

Background and Purpose of the Project

Background

This Final Environmental Impact Statement (FEIS) represents the culmination of a four-year effort undertaken to disclose impacts and develop mitigation for the proposed construction of a water storage reservoir on either Rock Creek in the Yampa Ranger District, Routt National Forest, or Muddy Creek in the Bureau of Land Management Kremmling Resource Area. The environmental analysis and alternatives evaluation was undertaken in response to an application submitted to the Forest Service on April 3, 1985, by the Colorado River Water Conservation District (River District) for a Special Use Permit for the construction of a dam and reservoir on Rock Creek. In May 1988, the River District applied to the Bureau of Land Management for a Right-of-Way to construct a dam and reservoir on Muddy Creek (Site C).

In accordance with the National Environmental Policy Act (NEPA), the Forest Service and Bureau of Land Management have conducted environmental analyses of the effects of the proposed projects and reasonable alternatives. A Draft EIS (DEIS) was issued by the U.S. Forest Service as lead agency in August 1987. A Supplemental Draft EIS (SDEIS) was issued by the U. S. Forest Service and Bureau of Land Management as co-lead agencies in August 1988. The SDEIS identified a 60,000 acre-foot reservoir at Site C on Muddy Creek as the U.S. Forest Service and Bureau of Land Management preferred alternative.

The USDA Forest Service and the USDI Bureau of Land Management are the co-lead agencies for this environmental compliance action. Cooperating agencies include: USDI Bureau of Reclamation, U.S. Army Corps of Engineers, USDI Fish and Wildlife Service, and Colorado Division of Wildlife.

The 1984 Kremmling Resource Management Plan lists livestock grazing, wildlife habitat, and water quality management as the priority land uses for the Muddy Creek Reservoir Area. A Right-of-Way for the Muddy Creek site would require an amendment to the Kremmling Management Plan to change approximately 1740 acres of livestock grazing, 30 acres of wildlife habitat, and 1.1 miles of water quality management priorities to the recreation management priority category to accommodate recreational use at the Muddy Creek Reservoir. The amendment would also change approximately 1,460 acres of Class II and 700 acres of Class III Visual Resource Management Class to Class IV. The management objectives for Class IV would be consistent with the construction of the project. The visual resource decision in the Kremmling Resource Management Plan would also be changed to establish consistency with the Bureau Manual.

To implement the proposed action, the Secretary of the Interior

(through the Bureau of Reclamation) would be required to execute an agreement which would provide for water substitution between a proposed new reservoir and Green Mountain Reservoir. Execution of such an agreement would constitute a major federal action on the part of Reclamation requiring appropriate National Environmental Policy Act (NEPA) compliance. The SDEIS and FEIS also disclose the potential impacts of execution of such an agreement by the Secretary of the Interior.

This Final EIS presents a summary of project purpose, need, alternatives, and impacts as well as supplemental information and errata for the SDEIS, and a summary of the final mitigation plan for the preferred alternative and the Biological Opinion issued by the U.S. Fish and Wildlife Service. A listing of environmental commitments by the U.S. Forest Service, Bureau of Land Management, and Bureau of Reclamation, and agency and public comment letters and response to comments on the DEIS and SDEIS are provided. This Final EIS summarizes and updates but does not duplicate, information contained in the SDEIS. For a more detailed discussion of specific topic areas, reference to the SDEIS (August 1988) is suggested.

Purpose and Need

The River District proposes to utilize a reservoir on either Rock Creek or Muddy Creek in a manner that meets both Metropolitan Denver and West Slope water demands and that the District considers to be consistent with its statutory mandate. The proposed interim operation of the project involves the lease of a major portion of the reservoir yield to the Denver Water Board for 25 years to be used by Denver to meet water needs in the Metropolitan Denver Area. Following this 25-year period, Denver could renew the lease for any portion of the firm annual yield that the River District determines is not necessary for western Colorado use. This lease could provide the District with the means to finance a portion of this project and to pursue its statutory obligations in support of present and future water needs in western Colorado. During the period of the lease the District would retain at least 10 percent of the yield of the project to support or service water users in western Colorado.

The short-term (25 year) need for the proposed project is based on projected water shortages in the Metropolitan Denver Area (MDA), beginning in about 1998. The proposed project would add approximately 15,000 acre feet per year to the total developed safe yield for the MDA. Over the long term the yield of the proposed project could be used to meet West Slope water needs, could continue to be leased by Denver or other Front Range municipalities, or could serve some combination of these demands. The most foreseeable West Slope demand is that the reservoir would support development of an oil shale industry and its associated municipal growth.

In regard to the need for the proposed project, an additional area of consideration relates to the operational enhancement that a storage reservoir on Rock Creek or Muddy Creek would provide for the Upper Colorado River water storage and delivery system. There would be potential benefits of coordinated operations of Williams Fork Reservoir, Green Mountain Reservoir, and a reservoir on either Rock Creek or Muddy Creek.

History of the Proposed Project

The River District's applications to the Forest Service and Bureau of Land Management for a special use permit or right of way to build a water storage reservoir are the result of an extremely complex and lengthy series of legal actions and negotiations involving the adjudication, permitting and construction of the Windy Gap Project. This series of actions and negotiations provides the financial basis for the River District to undertake construction of the proposed project or an alternative. The Azure-Windy Gap Supplemental Agreement of March 1985 resulted in a cash payment of $10,200,000 from the Northern Colorado Water Conservancy District's Municipal Subdistrict to the River District to permit, design, and construct a water storage reservoir in western Colorado as mitigation for the Windy Gap project. The River District-Denver Water Board agreement of December 15, 1986, would provide the River District with additional funds to meet its statutory purposes, including construction of the proposed project.

Issues and Concerns Identified and Addressed

As a result of scoping, internal staff review, and consultation with cooperating agencies, the Forest Service and Bureau of Land Management determined that major issues and management concerns for the Rock Creek and Muddy Creek sites could be grouped into the following categories. A generalized listing of the major issues which had a significant influence on selection of a preferred alternative is also included below.

Water
- Stream channel stability, morphology, and equilibrium
- Chemical and physical water quality conditions during and after construction
- Salinity effects in Lower Colorado River main stem
- Flow changes on Rock Creek, Muddy Creek, and the Colorado River

Engineering
- Dam safety, flood risk, hazard rating, and seismic activity
- Facilities relocation
- Post-project traffic patterns
- Location, development, and reclamation of materials borrow sources

Soils
- Compatibility of soils with projected uses
- Reservoir shoreline stability

Wildlife/ Vegetation	- Wildlife values, disturbance of winter/summer range and habitat, migration, and/or distribution patterns of elk and deer
	- Impact and loss of wetland, riparian habitat, and endangered plants
Fishery	- Impact on or loss of stream habitat and characteristics of reservoir habitat
	- Projected fishing use of affected area
Recreation/ Social	- Effect of reservoir operations on recreation use
	- Recreation potential and projected use
	- Land use changes and impacts on private lands
	- Visual impacts
	- Cultural resources
Economic	- Efficiency and impact of alternative reservoirs

Description of Rock Creek and Muddy Creek Alternatives

Alternatives Considered but Eliminated from Detailed Study

To determine alternatives that would be reasonable and feasible considering the history of the proposed project, a set of criteria were established. First, the alternative should provide approximately the same water yield as anticipated with the Azure Project (about 20,000 acre-feet). Second, the total project cost and cost per acre-foot of water yield should be reasonable in relation to the Azure-Windy Gap Supplemental Agreement. Finally, the project should be located within reasonable proximity of Windy Gap, the project being mitigated. Using these criteria a number of alternative sites and enlargements of existing reservoirs were considered. Other than the Rock Creek site in Routt County, the only reasonable alternative is on Muddy Creek in Grand County.

No Action Alternative

As required, a no-action alternative is considered. The no-action alternative assumes that a permit for construction of a dam and reservoir would not be issued for any site on either Rock Creek (U. S. Forest Service) or Muddy Creek (Bureau of Land Management). The no-action alternative provides a baseline for analysis of impacts. Under the no-action conditions the River District would be required to initiate a variety of legal and institutional proceedings related to the adjudication and negotiations described above.

Construction Alternatives - Rock Creek and Muddy Creek

The Rock Creek site is located just south of State Highway 134 west of Gore Pass, where Rock Creek enters a narrow valley. The Rock Creek Dam is proposed to be a roller compacted concrete (RCC) gravity dam, that would rise 172 feet above the existing streambed and impound 50,700 acre-feet of water. The Muddy Creek site is located just west of Wolford Mountain (5 miles north of Kremmling, Colorado). The Muddy Creek Dam is proposed to be a zoned earthfill dam that would have a dam crest located 120 feet above the present streambed and would create a reservoir with a 60,000 acre-foot capacity.

The following table provides a summary comparison of the physical features of the Rock Creek and Muddy Creek construction alternatives.

Comparison of Physical Features
Rock Creek and Muddy Creek Alternatives

Project features	Unit	Rock Creek	Muddy Creek
Reservoir			
Capacity	ac-ft	50,700	60,000
Conservation storage	ac-ft	4,000	4,000
Sediment storage	ac-ft	500	6,000
Yield	ac-ft/yr	17,000	23,000
Surface area	acres	1,070	1,447
Length	miles	3	5.5
Dam			
Type	-	Roller compacted concrete	Zoned earth fill
Crest elevation	feet	8,690	7,500
Height	feet	172	120
Volume	1000 yd^3	180	997
Crest length	feet	707	1,900
Crest width	feet	16	25
Outlet type	-	Single	Multiple
Discharge at min. reservoir	cfs	300	400

Impacts and Mitigation Summary

The potential positive and negative impacts of the Rock Creek and Muddy Creek alternatives are summarized in Table 1.3 in relation to the major engineering and environmental disciplines analyzed. The disclosure of impacts is based on Chapter 4.0 SDEIS, as amended. Proposed mitigation measures for potential impacts and unavoidable adverse impacts are also summarized in the table. The mitigation measures are based on Chapter 5.0 SDEIS, as amended. The Final Mitigation Plan for the Muddy Creek

alternative is summarized in Chapter 3.0 of the Final EIS.

The Preferred Alternative

The U.S. Forest Service and Bureau of Land Management preferred alternative is a 60,000 acre-foot reservoir at Site C on Muddy Creek.

The Environmentally Preferred Alternative

The environmentally preferred alternative is the No-Action Alternative.

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FINAL EIS

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1.0 PURPOSE, NEED, ALTERNATIVES AND IMPACTS

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ROCK CREEK/MUDDY CREEK RESERVOIR
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND RESOURCE MANAGEMENT PLAN AMENDMENT

1.0 PURPOSE, NEED, ALTERNATIVES AND IMPACTS

1.1 Introduction

This Final Environmental Impact Statement (FEIS) represents the culmination of a four-year effort undertaken to disclose impacts and develop mitigation for the proposed construction of a water storage reservoir on either Rock Creek in the Yampa Ranger District, Routt National Forest, or Muddy Creek in the Bureau of Land Management Kremmling Resource Area (see Figure 1.1). The environmental analysis and alternatives evaluation was undertaken in response to an application submitted to the Forest Service on April 3, 1985, by the Colorado River Water Conservation District (River District) for a Special Use Permit for the construction of a dam and reservoir on Rock Creek. In May 1988, the River District applied to the Bureau of Land Management for a Right-of-Way to construct a dam and reservoir on Muddy Creek (Site C).

In accordance with the National Environmental Policy Act (NEPA), the Forest Service and Bureau of Land Management have conducted environmental analyses of the effects of the proposed projects and reasonable alternatives. A Draft EIS (DEIS) was issued by the U.S. Forest Service as lead agency in August 1987. A Supplemental Draft EIS (SDEIS) was issued by the U. S. Forest Service and Bureau of Land Management as co-lead agencies in August 1988. The SDEIS identified a 60,000 acre-foot reservoir at Site C on Muddy Creek as the U.S. Forest Service and Bureau of Land Management preferred alternative.

The USDA Forest Service and the USDI Bureau of Land Management are the co-lead agencies for this environmental compliance action. Cooperating agencies include: USDI Bureau of Reclamation, U.S. Army Corps of Engineers, USDI Fish and Wildlife Service, and Colorado Division of Wildlife.

The 1984 Kremmling Resource Management Plan lists livestock grazing, wildlife habitat, and water quality management as the priority land uses for the Muddy Creek Reservoir Area. A Right-of-Way for the Muddy Creek site would require an amendment to the Kremmling Management Plan to change approximately 1,740 acres of livestock grazing, 30 acres of wildlife habitat, and 1.1 miles of water quality management priorities to the recreation management priority category to accommodate recreational use at the Muddy Creek Reservoir. The amendment would also change approximately 1,080 acres of Class II and 40 acres of Class III Visual Resource Management Class to Class IV. The management objectives for Class IV would be consistent with the construction of the project. The visual resource decision in the Kremmling Resource Management Plan would also be changed to establish consistency with the Bureau Manual.

To implement the proposed action, the Secretary of the Interior (through the Bureau of Reclamation) would be required to execute an agreement which would provide for water substitution between a proposed new reservoir and Green Mountain Reservoir. Execution of such an agreement would constitute a major federal action on the part of Reclamation requiring appropriate National Environmental Policy Act (NEPA) compliance. The SDEIS also disclosed the potential impacts of execution of such an agreement by the Secretary of the Interior.

An Environmental Impact Statement (EIS) is a document disclosing the environmental consequences of implementing a proposed action and alternatives to that action. It is not a decision document. Decisions will be documented in a Record of Decision(s) by the U.S. Forest Service, Bureau of Land Management, and Bureau of Reclamation.

This Final EIS presents a summary of project purpose, need, alternatives, and impacts in Chapter 1.0. Supplemental information and errata for the SDEIS are contained in Chapter 2.0. Chapters 3.0 and 4.0 contain, respectively, a summary of the final mitigation plan for the preferred alternative and the Biological Opinion issued by the U.S. Fish and Wildlife Service. A listing of environmental commitments by the U.S. Forest Service, Bureau of Land Management, and Bureau of Reclamation is provided in Chapter 5.0. Chapters 6.0 and 7.0 contain, respectively, agency and public comment letters and response to comments on the DEIS and SDEIS. Finally, Chapters 8.0 and 9.0 list coordination and consultation with others and provide the mailing list for the statement. This Final EIS summarizes and updates but does not duplicate, information contained in the SDEIS. For a more detailed discussion of specific topic areas, reference to the SDEIS (August 1988) is suggested. Appendix A of this Final EIS updates the Muddy Creek portion of Appendix A of the SDEIS. Appendices B and C support this Final EIS and do not replace Appendices B and C of the SDEIS.

1.2 Summary of Purpose, Need, and Related Information

1.2.1. Purpose and Need. The River District proposes to utilize a reservoir on either Rock Creek or Muddy Creek in a manner that meets both Metropolitan Denver and West Slope water demands and that the District considers to be consistent with its statutory mandate. The proposed interim operation of the project involves the lease of a major portion of the reservoir yield to the Denver Water Board for 25 years to be used by Denver to meet water needs in the Metropolitan Denver Area. Following this 25-year period, Denver could renew the lease for any portion of the firm annual yield that the River District determines is not necessary for western Colorado use. This lease could provide the District with the means to finance a portion of this project and to pursue its statutory obligations in support of present and future water needs in western Colorado. During the period of the lease the District would retain at least 10 percent of the yield of the project to support or service water users in western Colorado.

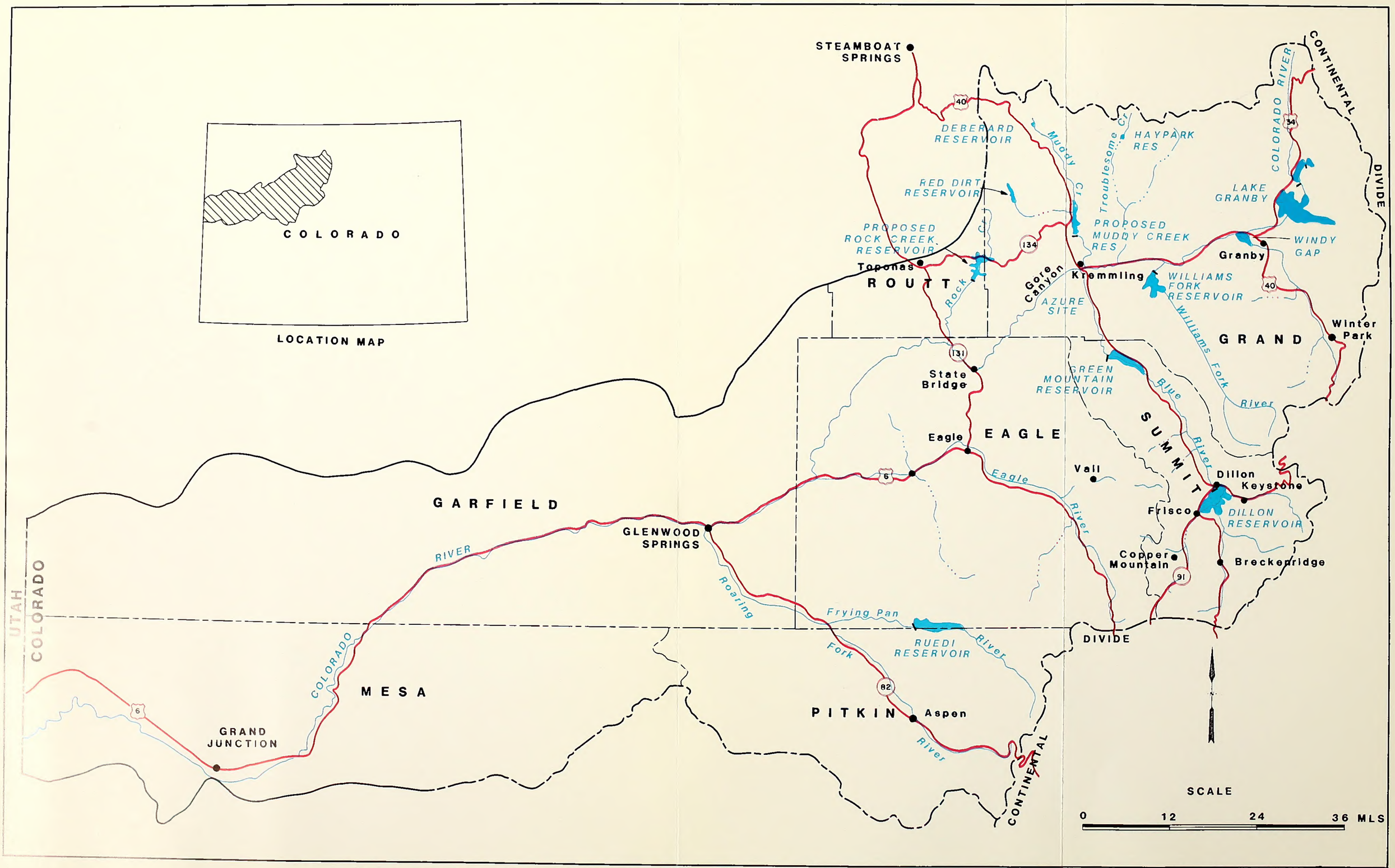


Figure 1.1 - Location Map for the Proposed Rock Creek and Muddy Creek Reservoir Sites.

The short-term (25 year) need for the proposed project is based on projected water shortages in the Metropolitan Denver Area (MDA), beginning in about 1998. The proposed project would add approximately 15,000 acre feet per year to the total developed safe yield for the MDA. Over the long term the yield of the proposed project could be used to meet West Slope water needs, could continue to be leased by Denver or other Front Range municipalities, or could serve some combination of these demands. The most foreseeable West Slope demand is that the reservoir would support development of an oil shale industry and its associated municipal growth.

In regard to the need for the proposed project, an additional area of consideration relates to the operational enhancement that a storage reservoir on Rock Creek or Muddy Creek would provide for the Upper Colorado River water storage and delivery system. There would be potential benefits of coordinated operations of Williams Fork Reservoir, Green Mountain Reservoir, and a reservoir on either Rock Creek or Muddy Creek.

The existence of Muddy Creek or Rock Creek reservoir and the exchanges, substitutions, and river operations changes which would be made possible would set the stage for annual River Operations meetings. These meetings would be integrated with meetings on endangered species conservation measures anticipated by the Bureau of Reclamation in regard to Ruedi and Green Mountain reservoirs. These meetings would likely be held in the spring after an assessment of the snowpack and available water supply has been made. They would include federal, state, and local government agencies, as well as water user, conservation, and public interest groups. Projected operations and flows would be presented and an opportunity would be provided for input from the public on effects and possible improvements. Agency input and public comments would be considered and addressed by the water management agencies within their operational constraints, demands, and flexibilities.

1.2.2. History of the Proposed Project. The River District's applications to the Forest Service and Bureau of Land Management for a special use permit or right of way to build a water storage reservoir are the result of an extremely complex and lengthy series of legal actions and negotiations involving the adjudication, permitting and construction of the Windy Gap Project (see Chapter 1.0 SDEIS for more detail). This series of actions and negotiations provides the financial basis for the River District to undertake construction of the proposed project or an alternative. The Azure-Windy Gap Supplemental Agreement of March 1985 resulted in a cash payment of $10,200,000 from the Northern Colorado Water Conservancy District's Municipal Subdistrict to the River District to permit, design, and construct a water storage reservoir in western Colorado as mitigation for the Windy Gap project. The River District-Denver Water Board agreement of December 15, 1986, would provide the River District with additional funds to meet its statutory purposes, including construction of the proposed project.

1.2.3. Related Projects. A number of different water projects would be related to or impacted by the operation of the proposed project. The proposed project is part of the mitigation package related to the Windy

Gap Project. The proposed reservoir also would be operated in conjunction with the Bureau of Reclamation's Green Mountain Reservoir. To implement the proposed action, the Secretary of the Interior (through the Bureau of Reclamation) would be required to execute an agreement which would provide for water substitution between a proposed new reservoir and Green Mountain Reservoir.

The U.S. Army Corps of Engineers has prepared the Metropolitan Denver Water Supply EIS (MDWS/EIS) disclosing the impacts of the development of additional water sources needed to supply water for future growth to the Metropolitan Denver Area. The MDWS/EIS describes both system-wide and site-specific alternatives to supply this water. West Slope Exchanges are included in the various system-wide alternatives to meet metropolitan Denver's near-term water needs. The MDWS/EIS identifies both the Rock Creek and Muddy Creek (Wolford Mountain) reservoirs as components in a Blue River Exchange Scenario. Under the Denver Water Board - River District agreement of December 1986, the Water Board could use either Rock Creek or Muddy Creek Reservoir in support of exchanges or substitutions to accomplish transmountain diversions by making releases which would permit an equivalent amount of water to be either retained in reservoirs owned by Denver or diverted under direct flow decrees owned by Denver.

The Colorado Water Resources and Power Development Authority conducted a study of the Joint-Use Reservoir and Green Mountain Exchange projects. The upper Colorado River system was examined at a reconnaissance level for candidate sites. Unregulated streams (Muddy Creek, Troublesome Creek, and the Piney River) were considered along with previously studied reservoir sites. Nine sites were identified, including sites A and C on Muddy Creek (Wolford Mountain). Site A (or A') would be a large 120,000 acre-foot reservoir on Muddy Creek near Kremmling. Site C of the Authority study coincides with Site C on Muddy Creek as evaluated here.

1.2.4. Issues and Concerns Identified and Addressed. As a result of scoping, internal staff review, and consultation with cooperating agencies, the Forest Service and Bureau of Land Management determined that major issues and management concerns for the Rock Creek and Muddy Creek sites could be grouped into the following categories. A generalized listing of the major issues which could have a significant influence on site selection is also included below.

Water
- Stream channel stability, morphology, and equilibrium
- Chemical and physical water quality conditions during and after construction
- Salinity effects in Lower Colorado River main stem
- Flow changes on Rock Creek, Muddy Creek, and the Colorado River

Engineering
- Dam safety, flood risk, hazard rating, and seismic activity

	- Facilities relocation
	- Post-project traffic patterns
	- Location, development, and reclamation of materials borrow sources
Soils	- Compatibility of soils with projected uses
	- Reservoir shoreline stability
Wildlife/ Vegetation	- Wildlife values, disturbance of winter/summer range and habitat, migration, and/or distribution patterns of elk and deer
	- Impact and loss of wetland, riparian habitat, and endangered plants
Fishery	- Impact on or loss of stream habitat and characteristics of reservoir habitat
	- Projected fishing use of affected area
Recreation/ Social	- Effect of reservoir operations on recreation use
	- Recreation potential and projected use
	- Land use changes and impacts on private lands
	- Visual impacts
	- Cultural resources
Economic	- Efficiency and impact of alternative reservoirs

1.3 Summary of Alternatives Considered

This section summarizes the alternatives that were evaluated as a part of the NEPA compliance process but eliminated from further consideration. To determine alternatives that would be reasonable and feasible, a set of criteria were established. First, the alternative should provide approximately the same water yield as anticipated with the Azure Project (about 20,000 acre-feet). Second, the total project cost and cost per acre-foot of water yield should be reasonable in relation to the Azure-Windy Gap Supplemental Agreement, and finally, the project should be located within reasonable proximity of Windy Gap, the project being mitigated (see Fig. 1.1).

1.3.1. Azure Project Alternatives. From May 1980 through September 1983, the River District and the Northern Colorado Water Conservancy District Municipal Subdistrict (Municipal Subdistrict) investigated reservoir alternatives at the Azure damsite.

After extensive environmental analyses, all of the Azure alternatives were dropped from further development as alternatives for mitigation storage for the Windy Gap Project. The reasons for dropping Azure alternatives were:

1. The high cost of the project alternatives.

2. Impacts on recreation in the Gore Canyon.

3. Opposition to the project by local governmental officials, including Grand County.

4. Extensive time required for project permitting.

Because of the extensive history of review, Azure Project alternatives have not been considered further in this EIS.

1.3.2 Enlargement of Existing Reservoirs. One alternative brought up in scoping was the possibility of adding to the storage volume of existing reservoirs. There are few existing small reservoirs in the project vicinity and these small reservoirs serve primarily agricultural uses. An example of a reservoir that might be enlarged is Red Dirt Reservoir located on Red Dirt Creek in the Muddy Creek drainage.

Enlargement of Red Dirt Reservoir is estimated to cost $1,191,300 and would provide 800 acre-feet per year increased yield. To obtain a comparable yield to Rock Creek or Muddy Creek alternatives, approximately 20 to 25 reservoirs would have to be enlarged at an estimated construction cost of $27 million. This alternative was eliminated from further consideration because it could not provide sufficient water at reasonable cost.

1.3.3. Haypark Reservoir. The Haypark Reservoir site is located on the East Fork of Troublesome Creek in Grand County. The reservoir basin would accommodate a reservoir site up to 70,000 acre-feet and the cost of the reservoir was estimated at $60 million. The reservoir was not considered as an alternative because of the high cost of the project and geologic concerns with landslides within the reservoir basin associated with steep and unstable slopes.

1.3.4. Muddy Creek Site A. A large reservoir on Muddy Creek (Site A) was considered by the Colorado Water Resources and Power Development Authority as part of the investigations for the joint use reservoir and Green Mountain exchange projects (see Section 1.2.3). As envisioned, Site A would be located on Muddy Creek, approximately 1 mile upstream from Kremmling. A 137-foot high dam would create a reservoir of 119,600 ac-ft with an estimated yield of 84,000 ac-ft/yr. Approximately 40 to 50 percent of the yield would be provided by water pumped from the Colorado River in wet years through 2.4 miles of pipeline.

An additional large reservoir site about 3/4 miles upstream from Site A (Site A') was also considered as part of the Colorado Water Resources and Power Development Authority investigation. To be cost effective, the project would require diversion and pumping of water from the Colorado River. The project would store approximately 120,000 acre-feet, yield about 50,000 acre-feet, and cost about $90,000,000.

It is likely that the need for a large reservoir on Muddy Creek would not materialize until well into the future when the initial cost of construction of a smaller project upstream at Site C will have been amortized and much of the smaller project's economic life would have been realized. An existing project at Site C as proposed in this EIS would not necessarily preclude constructing a larger project downstream at Site A or A' from an engineering or economic perspective. There would be, however, many other environmental factors considered in justifying the larger project. A large Muddy Creek Reservoir project was eliminated from further consideration for the following reasons:

1. The water yield and total project cost are well beyond the range considered feasible as an alternative.

2. The capital cost per acre-foot of water yield (unit cost) is almost twice that estimated for either the Rock Creek or Muddy Creek Site C project.

3. The need for a reservoir larger than 60,000 acre-feet on Muddy Creek cannot be demonstrated at this time.

4. The financing (repayment capability) for a large Muddy Creek Reservoir (100,000+ acre-feet) is not currently available.

5. From an engineering or economic perspective, construction of a smaller reservoir at Site C would not preclude constructing a larger project downstream at some time in the future.

1.3.5. DeBerard Reservoir. The DeBerard Reservoir site is located on Muddy Creek approximately 20 miles upstream of Kremmling. The dam and reservoir site is located in a geologic setting similar to the Muddy Creek site. The reservoir was not considered as an alternative because of the limited size and yield available at the reservoir site and high cost of the reservoir.

1.3.6. Projects on the Eagle River. The River District holds conditional water decrees for several projects in the Eagle River drainage, including Iron Mountain Reservoir located on Homestake Creek above the town of Minturn. The Iron Mountain Reservoir site has a storage capacity of up to 100,000 acre-feet with a yield of up to 30,000 acre-feet per year. However, the project is very expensive, up to $200 million, and geologic concerns within the basin could preclude or make it even more costly to build a dam at the Iron Mountain Reservoir site. Projects on the Eagle River are also considered to be located out of geographic proximity of Windy Gap.

1.3.7. Projects Upstream of Kremmling on the Blue and Colorado Rivers. Storage projects on the Blue and Colorado rivers upstream of Kremmling were also considered. However, no candidate projects were identified. The Blue and Colorado rivers upstream of Kremmling are already heavily impacted by existing and planned projects which effectively utilize the available water supply.

The Colorado Water Resources and Power Development Authority in conjunction with the River District and other study proponents is currently investigating small storage sites as a possible solution to the water problems in the Fraser River Basin. However, any reservoir constructed, would be used primarily to manage or regulate river flows rather than provide additional storage.

1.3.8. Change Legal and/or Judicial Framework. It was suggested during scoping that it might be possible to implement changes to existing legal or judicial controls as an alternative to reservoir construction. Given the lengthy and complex series of legal actions and negotiations related to the Windy Gap Project that form the basis for the proposed action, an alternative that envisions changes to the existing legal and judicial framework would be speculative.

It must be recognized that the Azure-Windy Gap Agreement which provides the financial basis for this project also restricts the range of options for which these funds can be used. These restrictions were considered in developing the alternative screening criteria of Section 1.3. Simply changing the legal or judicial framework of existing agreements would not provide additional water for future demands in the Denver metropolitan area or for future West slope demands.

1.3.9. Denver-Public Service Company (PSC) Shoshone Agreement. In April 1986, the Denver Board of Water Commissioners entered into an agreement with the Public Service Company of Colorado concerning the operation of the Shoshone Hydroelectric Power Plant. The Shoshone Power Plant, located in Glenwood Canyon, is one of two senior water rights that effectively control the administration of the mainstem of the Colorado River. The Shoshone Power Plant has a 1902 water right for 1,250 cfs and a more junior right for 158 cfs.

In theory, the Denver-PSC Agreement might be considered a functional alternative to the River District-Denver lease because use of the Agreement would reduce the winter demands on replacement releases from Williams Fork Reservoir, thus increasing the supply of water available in Williams Fork Reservoir for use to make up the Green Mountain fill deficit. Providing Denver with the water to replace the Green Mountain fill deficit is the primary function of the short-term demand on Rock Creek or Muddy Creek reservoirs. Use of the Denver-PSC Agreement as a possible alternative to the proposed action was examined in detail in the SDEIS.

Analysis of the potential quantity of water available under the terms of Denver-PSC Shoshone Agreement shows that between 1,000 and 6,000 acre-feet might be provided by the Agreement during representative dry years if the Agreement were administered to insure no injury to senior water rights. In all likelihood, water available would be significantly less than projected because of the difficulty in recognizing the onset of a dry period. This would preclude capture of significant amounts of water in November and December. Since, either Rock Creek or Muddy Creek reservoir could provide up to 30,000 acre-feet in a given year, the Agreement would not be functionally equivalent to either proposed reservoir in terms of water availability.

In addition, the Denver-PSC Shoshone Agreement would not supply any of the additional short-term or long-term East Slope or West Slope water needs such as making up Green Mountain water operations shortages or oil shale demand. Nor would the Agreement contribute to operational enhancement of the Upper Colorado River water storage and delivery system. Thus, the Agreement was eliminated from further consideration as an alternative to the construction of a reservoir on Rock Creek or Muddy Creek.

1.4 Alternatives Analyzed in Detail.

1.4.1. No-Action Alternative. The no-action alternative assumes that a permit for construction of a dam and reservoir would not be issued for any site on either Rock Creek or Muddy Creek. Management of the use of the resources of the region would be based on plans, regulations, and policies promulgated by Federal, State, and local agencies. Consequently, under this alternative changes to the existing environment of the region would continue as in the recent past. A no-action condition would terminate the involvement of the Forest Service and Bureau of Land Management in this application for a Special Use Permit or Right of Way; but the Colorado River Water Conservation District and other West Slope and East Slope entities could not terminate efforts to find a means of adequately mitigating the potential harm to present and prospective water users within the Colorado River basin in Colorado as a result of the Windy Gap Project.

Construction of the Windy Gap Project was completed in June 1985 and the project is now in operation. Authorization for that project was contingent upon development of a plan to mitigate potential impacts to water users on the Colorado West Slope. Development of that mitigation plan required a series of complex legal and institutional actions. Under the no-action condition the River District would be required to initiate a variety of legal and institutional proceedings related to the adjudication and negotiations discussed in Sections 1.2.1 and 1.2.2. These proceedings would involve additional adjudication under the Azure-Windy Gap Supplement Agreement of March 29, 1985. Any attempt to predict the outcome of these proceedings and assess the environmental impacts that might result would, at this time, be purely speculative.

It is apparent, however, from a review of alternatives considered but eliminated from further consideration (see Section 1.3) that the options available to provide mitigation for the Windy Gap Project are limited. Alternative structural and non-structural solutions potentially available to the River District cannot meet the screening criteria of project water yield, reasonable project cost, and project location.

Given the difficulty of developing alternative solutions it is certain that a no-action condition would defer the resolution of a number of significant problems for both West Slope and Metro Denver water users. Over the short term, the Denver Water Board's ability to meet a Green Mountain fill deficit or to use a Williams Fork to Dillon exchange could be limited. If a no-action condition were to continue indefinitely, municipal and industrial use of water could be impacted. Site-specific and cumulative environmental impacts associated with the two dam and reservoir alternatives as discussed in the remainder of this section would not occur.

1.4.2. Rock Creek Reservoir

1.4.2.1. Dam and Reservoir. The Rock Creek Reservoir site is located on Rock Creek, a tributary to the Colorado River, in Routt County and within the Yampa Ranger District of the Routt National Forest. The area is in a canyon section of the Rock Creek Valley, on the western flank of the Gore Range, about 7 miles west of Gore Pass and 12 miles west of the town of Kremmling, Colorado. The potential dam site is approximately 12 miles upstream from the confluence with the Colorado River. The preferred site, Dam Site B (see Fig. 1.2) lies at the point where Rock Creek changes from a meandering stream channel to a steep canyon. The proposed dam would be constructed of roller-compacted concrete (RCC).

The Rock Creek Dam would be 172 feet high from the streambed to a crest elevation of 8690 feet. Crest length would be 710 feet, and crest width would be 16 feet. The freeboard (height above normal high water elevation) would be 9 feet. The dam would contain a gross volume of about 180,000 cubic yards of concrete. Material for the dam would be obtained from the reservoir basin upstream of the dam and would have haul distances of 1 to 2 miles.

At the normal high water elevation (elev. 8681), the dam would impound 50,700 acre-feet of water, forming a reservoir of 1,070 acres and extending upstream about 3 miles from the dam. The total storage would include approximately 500 acre-feet reserved for silt accumulation, an amount estimated to be adequate for 50 years of storage. A 4,000 acre-foot conservation pool is also a feature of the reservoir.

The dam would include a spillway designed to pass a probable maximum flood (PMF) after routing through the reservoir. Routing the PMF through the reservoir would create an 8.8-foot rise in reservoir surface level and produce a maximum outflow of 10,200 cfs.

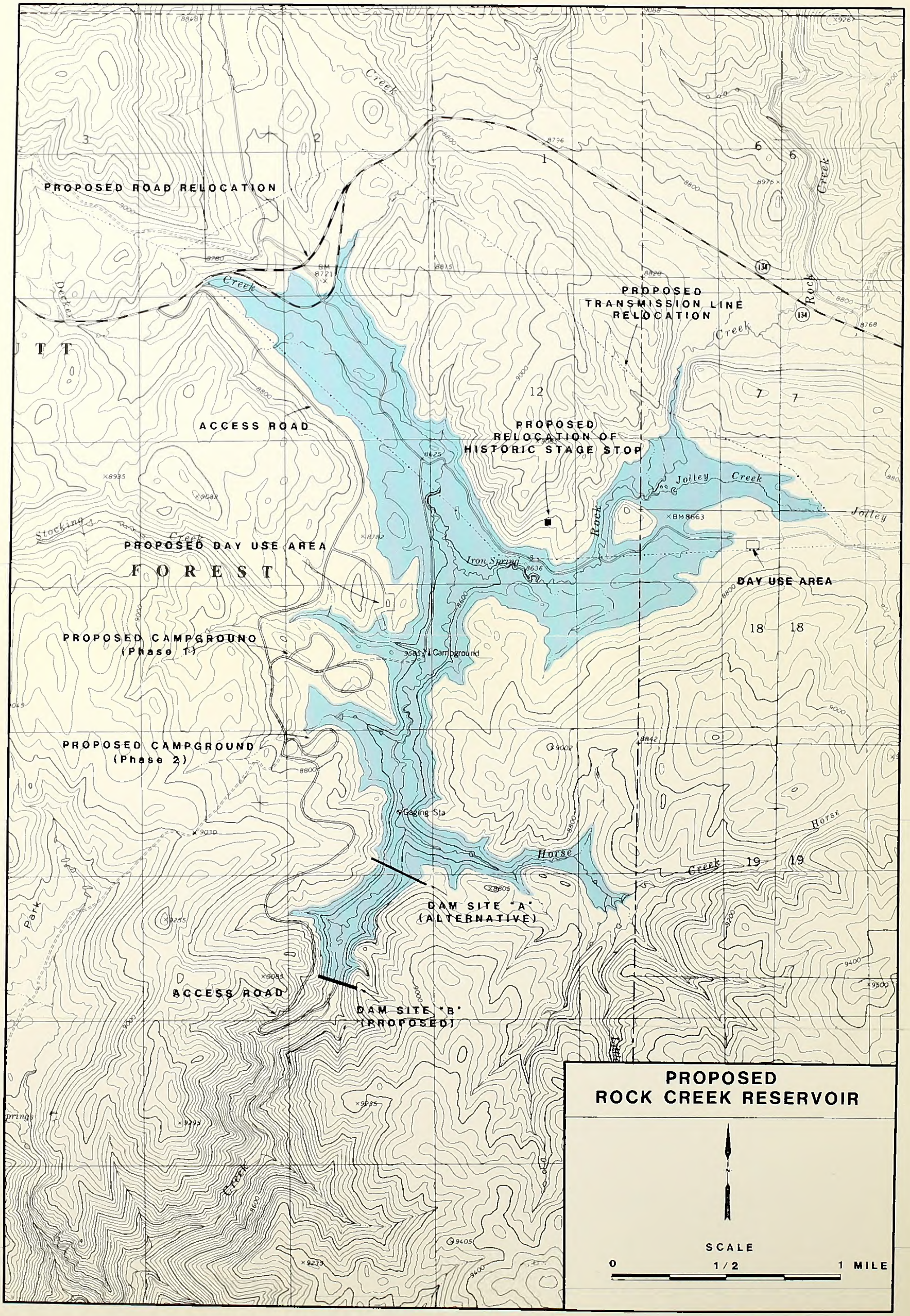


Figure 1.2 - Proposed Rock Creek Reservoir and Associated Components.

During construction, diversion of the stream would be through a conduit located on the right side of the streambed (looking downstream) extending between upstream and downstream cofferdams. A temporary bypass pipe would be provided through the dam to pass required minimum flows in the interim period between plugging of the diversion channel and reservoir filling to the sill of the intake structure. Seepage inflow into the foundation area will be pumped into an upstream settling pond and returned to the stream.

In the Rock Creek valley area, approximately 1 to 2 miles upstream, excavated areas would be opened for obtaining the aggregates to be used in the dam. A new flow channel would be constructed along the east side of the valley and Rock Creek would be diverted into it. The area on the valley floor to the west would be cleared of vegetation on the surface and then excavated and removed from the valley floor to be processed into the appropriate gradation for use in roller-compacted concrete.

In certain areas the excavation would be under water and ponds will form. In other areas there may be dewatering by pumps into settling ponds where the water would return to the natural stream channel at locations upstream of the dam. Permit restrictions would be met regarding discharge of sediment laden materials into the natural water course. Dikes would be placed along the diverted channel and ponds to prevent overtopping during high streamflow periods.

The outlet works would consist of a pipe riser intake attached to the upstream face of the dam connecting to the conduit passing under the dam and a valve structure at the downstream toe of the dam. A 60-inch valve would have a capacity of 300 cfs at minimum reservoir pool, while a 12-inch valve would regulate flows in the 0 to 30 cfs range, providing flow control during winter minimum flow periods.

1.4.2.2. Access Roads, Relocations, and Recreation Facilities. The proposed 50,700 acre-foot reservoir would inundate a 2-mile section of a 138 kv transmission line, a Forest Service access road, a 1/2-mile portion of State Highway 134, a small Forest Service campground, and a building that was formerly used as a stagecoach stop and has since been placed on the National Register of Historic Places (Fig. 1.2).

The 138 kv transmission line is owned and operated by the Western Area Power Administration. The proposed relocation alignment was selected as the route which provides the least visibility from State Highway 134 and is shown in Fig. 1.2.

An existing Routt National Forest access road presently exists at State Highway 134 near the northernmost tip of the proposed reservoir, parallels Rock Creek for about 1.5 miles before reaching a primitive campground, and then rises out of the valley into the Long Park area. The proposed road would serve as both Forest Service access and dam access and is shown in Fig. 1.2. The initial 2.8 miles would be a 20-foot wide gravel surfaced road, built up over the existing ground level, and provided with surface and cross drainage facilities. This road would not be kept open during the winter. The last mile of the road would consist of a

single lane 10-foot-wide gravel road, which would be closed to the general public. Use of this road by the River District would be authorized through the Forest Service permitting system. The road would provide access to the west side and to the bottom of the dam, but not to the east side.

At the upstream end of the reservoir, a 0.5-mile section of State Highway 134 would be inundated by about 10 feet of water. As shown in Fig. 1.2, this section would be realigned by moving slightly uphill, and a widened section would be added as an observation turnout. The widened section would allow State vehicles easy access and facilitate snowplowing. The area would be designed to accommodate approximately 15 vehicles.

The historic stage stop (Fig. 1.2) is 41 feet below the normal high water elevation of 8681 feet. It is proposed that this building be moved from its present location, probably to higher ground near its present location just above the high water line of the reservoir. An alternative would be to catalog the Stage Stop site and then allow it to be inundated. Since Forest Road 206 would provide the only public access to the east side of the reservoir, fisherman use and hiking in the vicinity of the Stage Stop is anticipated. A parking area for approximately 12 vehicles and a vault toilet would be provided.

An existing camp site is a primitive facility consisting of a pit toilet. A campground and picnic ground would be constructed at the area shown on Fig. 1.2. Initially, this campground would provide the equivalent of 50 camp units. The picnic ground would have a double lane boat launch ramp with parking for approximately 30 car and boat trailer combinations, a vault toilet, and 20 picnic units. Associated with the campground, a trail system would be constructed to connect campground loops, the picnic area, and heavily used adjacent shoreline.

1.4.2.3. Operating Facilities and Project Administration. The operation, maintenance, and repair of the dam, outlet works, spillway, and other appurtenances would be the responsibility of the River District. The U.S. Forest Service and Routt National Forest would operate the campground facilities.

1.4.2.4. Non-Federal Land Acquisition. With the exception of approximately 100 acres of private land at the upper end of the proposed Rock Creek Reservoir and approximately 200 acres of State land along Rock Creek, all of the reservoir basin lies on National Forest System lands. The private land would be purchased by the River District. The Forest Service would require the River District to deed this land to the United States. The 200 acres of State land along Rock Creek in the basin would be acquired by the River District.

1.4.3. Muddy Creek Reservoir

1.4.3.1. Dam and Reservoir. The potential site investigated for a reservoir on Muddy Creek lies in a canyon section of the Muddy Creek Valley

Figure 1.3

PROPOSED MUDDY CREEK RESERVOIR AND ASSOCIATED COMPONENTS

60,000 acre-foot Reservoir

47,000 acre-foot Reservoir

30,000 acre-foot Reservoir

10,000 acre-foot Reservoir

SCALE

0 1/2 1 MILE

RAISING OF HIGHWAY 40

CAMPGROUND

ACCESS ROAD

PARKING AREA

BOAT RAMP

INTAKE TOWER

EXISTING ROAD

PRIMARY ACCESS ROAD

PARKING

OUTLET WORKS

OUTLET WORKS ACCESS ROAD

TRANSMISSION LINE RELOCATION

SECONDARY ACCESS ROAD

on the western flank of Wolford Mountain. The site is about 4 miles north of the town of Kremmling, Colorado (Fig. 1.3). Muddy Creek enters the Colorado River at Kremmling, just below the confluence with the Blue River and upstream of Gore Canyon.

The proposed dam would be an earth embankment dam, rising 120 feet from the streambed to the crest at an elevation of 7500 feet. Crest length would be about 1900 feet, including the service spillway, and the crest width would be 25 feet. The normal operating level would be at 7485 feet, providing a freeboard of 15 feet. The dam would contain a total of approximately 997,200 cubic yards of fill material. The majority of this material would be obtained from borrow areas immediately upstream and downstream of the damsite, resulting in haul distances of less than 1 mile. Approximately 42,800 cubic yards of riprap would have to be hauled 40 miles from a quarry to the east, and a supplier in Kremmling may supply up to 76,700 cubic yards of material, for filters, drains and concrete aggregate.

At the normal water surface elevation of 7485 feet, the dam would impound 60,000 acre-feet of water, forming a reservoir of 1,447 acres, and extending about 5.5 miles upstream of the dam. The total volume includes approximately 6,000 acre-feet reserved to contain 50 years of silt accumulation from the Muddy Creek basin. A 4,000 acre-foot conservation pool is also a feature of the reservoir.

The dam would include a spillway designed to pass a probable maximum flood (PMF) after routing through the reservoir. Routing the PMF through the reservoir would create a 14 foot rise in reservoir surface level and produce a maximum outflow of 27,665 cfs.

During construction, diversion of the stream would be through a conduit located on the right side of the streambed extending between upstream and downstream cofferdams. The diversion would be sized to accommodate the 10-year spring runoff discharge of about 1,500 cfs. After diversion, the conduit would be permanently plugged upstream of the outlet works intake. A temporary bypass would be provided to pass required minimum flows in the interim period between plugging of the diversion channel and reservoir filling to the sill of the intake structure.

The conduit and earth cofferdams would be utilized for the primary streamflow diversion around the Muddy Creek site. Pumped water from the excavated foundation area is expected to be less turbid than the streamflow and will be pumped downstream back into Muddy Creek.

Materials excavated to be used in the dam embankment would come from areas on both abutments which are above the ground-water line. There should be no problem in controlling possible rainfall-induced runoff during construction.

The core material is expected to be obtained from the reservoir area within 1 mile of the dam axis at the west side of the valley floor. This material source is some distance from the main channel and borrow areas will be isolated from the streambed and will not contribute to runoff into Muddy Creek during construction.

The outlet works would consist of an intake tower in the right side of the reservoir upstream of the dam connecting to the conduit passing under the dam and an outlet structure at the downstream toe of the dam. The outlet works would provide a discharge of 400 cfs at minimum reservoir pool. The intake tower would contain four slide gates located at various elevations for selective withdrawal from the reservoir.

1.4.3.2. Access Roads, Relocations, and Recreation Facilities. The proposed Muddy Creek Reservoir would inundate approximately 3500 feet of U.S. Highway 40, and two towers of a 230-kV transmission line. The highway section would be about 16 feet under water at the Red Dirt Creek crossing and would be elevated by an embankment to specifications of the Colorado Division of Highways. The two transmission towers would be relocated just downstream of the dam. Primary access to the dam would consist of a turn-off from U.S. Highway 40 approximately 3 miles north of the town of Kremmling. This primary access road would lead to the dam crest at the right abutment. A secondary access road would be planned (Fig. 1.3) as a continuation of the transmission line road on the eastern side of the reservoir. There would also be a secondary access roads from the west side to the outlet works at the toe of the dam.

A campground and picnic ground would be constructed at the area shown on Figure 1.3. The campground would provide the equivalent of 50 camp units with a 25 site loop and enlarged parking lot for an additional 25 camping spaces. Campsites would include shade shelters. The picnic ground would have 30-50 picnic sites and a double lane boat launch ramp. Wells, vault toilets and a dump station would be provided. Access to the campground/picnic ground would be from Highway 40. A second access from Highway 40 would also be provided to the area below the dam for parking, some picnicking, and fisherman day use.

It is anticipated that the campground and picnic ground would be managed by the State of Colorado, Division of Parks and Outdoor Recreation. Access would be controlled and a use fee would be charged. Fencing would be provided as required to restrict vehicular access to the east and west shores of the proposed reservoir. Figure 1.3 shows proposed access roads, general location of recreational facilities, and the reservoir perimeter at various reservoir pool levels.

1.4.3.3. Operating Facilities and Project Administration. The operation, maintenance, and repair of the dam, outlet works, spillway, and other appurtenances would be the responsibility of the River District.

1.4.3.4. Muddy Creek Construction Planning and Schedule. Impervious materials for the core would be borrowed from areas upstream from the dam on the right bank, within a half-mile haul. Allowing for stripping of organic material and shrinkage of the impervious core materials, approximately 222,000 cu yd would be handled to produce 177,800 cu yd of in-place core. About 714,400 cu yd of material for the upstream and downstream shells would be borrowed from the right bank immediately upstream and downstream from the damsite. It is possible that materials

from the dam foundation excavation and spillway chute would all produce satisfactory shell material.

The remaining portions of the dam embankment consist of the chimney filter, 32,200 cu yd; blanket drain, 32,000 cu yd; and riprap, 42,800 cu yd. The filter materials might possibly be procured from the borrow areas for shell material with screening and processing necessary to meet the specification. Concrete and filter material could be produced onsite or procured locally from a commercial source. There is no known source of riprap available within the Kremmling area. At present construction planning contemplates a quarry source to the east, within a 40-mile haul limit. Roller compacted concrete utilizing locally available material might also be an option for slope protection during final design.

Dam foundation excavation would be waste stockpiled upstream from the dam site, probably within a half-mile haul. This material, if satisfactory for the shell zones, would be hauled back to the dam in lieu of the downstream borrow.

The total excavation is approximately 347,000 cu yd for the dam foundation, outlet works and spillway structure. Borrow material for the embankment would total another 842,200 cu yd excluding the filter zones, blanket drain and riprap. The total common excavation, therefore, including the shale for the cutoff trench would be approximately 1,239,200 cu yd. Specialized equipment would not be required for the earthwork phases of construction.

The dam could be constructed in one working season if the weather were favorable, a notice to proceed were issued in early March, and stream diversion flow were to fall within a 10-year flood forecast. Total concrete required for the structures would be about 14,500 cu yd, which, if performed in one season, would require peak placements of 800 cu yd per week. Planning for a two-season cycle is a more conservative approach.

1.4.3.5. Private Land Acquisition. Muddy Creek site C lies on public land administered by the Bureau of Land Management land, but much of the reservoir basin is in the private ownership of three ranches. The private lands in and surrounding the reservoir basin consist of about 2-1/2 sections or 1,600 acres. Although not all of these lands would be inundated by the proposed project, it is anticipated that they would all be acquired by the River District to ensure equitable treatment of the landowners. Otherwise, there would be small, isolated parcels of private land, an undesirable situation for both the landowner and the reservoir operator.

1.4.3.6. Muddy Creek Reservoir Operations Summary. Under Colorado's system of water law, those water users with the most senior priority dates get the first call on available water. For this reach of the Colorado River, the senior water rights at Cameo (collectively about 2200 cfs with pre-1920 priority date) or Shoshone Power Plant (about 1250 cfs with a priority date of 1902) control the administration of the river. Diversions junior to the Shoshone and Cameo rights need to provide augmentation water for periods when their junior right is "out of priority." Thus, Muddy

Creek would be primarily a source of augmentation water. When releases are made from the proposed reservoir as substitution for water stored in Green Mountain reservoir, those releases would be controlled by the Bureau of Reclamation as though the water were stored in Green Mountain Reservoir.

Both a Metro Denver Lease and West Slope Scenario were analyzed in the DEIS for Rock Creek Reservoir and a comparably sized Muddy Creek Reservoir. For the SDEIS, Muddy Creek Reservoir was optimized at 60,000 acre-feet and both demand scenarios were modified. Discussion between the River District and the Denver Water Department concerning implementation of the Lease led to several modifications to the Denver Metro Lease scenario, primarily to avoid potential impacts to flows on the mainstem Colorado River between Williams Fork and the Blue River. Discussion with the Department of Interior following publication of the DEIS resulted in development of a modified post 25-year lease or West Slope water demand related, primarily, to projected oil shale demand. Finally, discussion with the U. S. Fish and Wildlife Service regarding the Biological Opinion and potential impacts on rare Colorado River fishes resulted in further modifications to the Metro Denver Lease scenario, as described below.

1.4.3.7. Metro Denver Lease Demand. Although intended to serve West Slope interests, water from a reservoir at Muddy Creek would be marketed to the Denver Water Board (Metro Denver Lease) in the short term (25 years). This short-term operational scenario was formalized under the December 1986 Denver Water Board - River District Agreement. Under this scenario, Muddy Creek Reservoir would be operated to fulfill three primary demands:

1. Supply one-half of the Green Mountain natural fill deficit during dry years (approximately 5 out of 30 years under present development conditions and as often as 12 years out of 30 with full development of East Slope storage) when Williams Fork Reservoir exceeds 65,000 acre-feet. This demand would come primarily in August and September, after the Bureau of Reclamation has determined that Green Mountain will not achieve its legal fill from the intervening inflow between Dillon and Green Mountain. This release would offset releases from Dillon Reservoir. The other 50 percent of the fill deficit would be supplied by Williams Fork Reservoir, as was done in 1977. When Williams Fork Reservoir is below 65,000 acre-feet, the entire Green Mountain fill deficit would be supplied (up to the terms of the lease). Under the terms of the River District-Denver Water Board lease, this demand could not exceed 30,000 acre-feet in any given year, or 45,000 acre-feet any 3 years.

2. Provide for 2,000 acre-feet of water supply for Middle Park Water Conservancy District, as required by the Intergovernmental Agreement.

3. Provide for augmentation releases to bring the July and August flows out of Muddy Creek Reservoir up to 100 cfs enhancing flows in Muddy Creek and the Colorado River downstream. The availability of these releases would be dependent upon storage in the reservoir, but they could be used for a variety of enhancement purposes if such enhancement proves to be significant (e.g. endangered fishes, recreation, aquatic habitat).

There are presently no Colorado Water Conservation Board instream flow requirements on Muddy Creek; however, Muddy Creek Reservoir operational analysis has assumed a 13 cfs minimum flow below the proposed dam.

In January 1988, the Secretary of the Interior, the Governors of Colorado, Wyoming, and Utah, and the Administrator of the Western Area Power Administration entered into a Cooperative Agreement to implement the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program). A principal element of the Recovery Program is a process for conducting Section 7 consultation on the impacts of water depletions to the rare Colorado River fishes and for acquiring water and/or water rights to provide instream flows for the rare Colorado River fishes. Under the Recovery Program, the depletion impacts of water development projects are offset by: (a) recovery activities partially funded by water project proponents' one-time contribution to the Recovery Program in the amount of $10 per acre-foot of the project's average annual depletion; and (b) legal protection of instream flows according to State law. The U. S. Fish and Wildlife Service (USFWS) has decided that it must determine that progress towards legal protection of instream flows is sufficient to offset impacts of large depletion projects before it will issue a favorable biological opinion. (See Chapter 4.0 for a summary of the USFWS Biological Opinion on the Muddy Creek project).

During Section 7 consultation between the USFWS and BLM a Memorandum of Understanding (MOU) was negotiated between the USFWS and River District in relation to item (b), above. The purpose of the MOU is to provide flows from Muddy Creek Reservoir to the 15-mile reach of the Colorado River for the rare Colorado River fishes pursuant to the Recovery Program to offset the depletion impacts of the Muddy Creek project and to meet the "sufficient progress" determination as identified in the Biological Opinion for the Muddy Creek project. (See Chapter 4.0 for a summary of the MOU).

Under the MOU, the River District has agreed to release 3,000 acre-feet of water from Muddy Creek Reservoir approximately 3 out of 5 years (as a long-term average) for delivery to the 15-mile reach during July 15 to October 15. This water is being provided by the River District to augment flows in the 15-mile reach on an interim basis (i.e. until such time as the Recovery Program has acquired and protected an equivalent amount of water).

As described in the SDEIS (Chapter 4.0), a reservoir operational model was developed for the Muddy Creek project. The MOU to provide releases to augment flows in the 15-mile reach precludes releases for any other augmentation purposes described under item 3 above, while the MOU is in effect. Hydrologic data for Muddy Creek reservoir operations under a Metro Denver Lease demand, including the requirements of the MOU, are presented in Appendix A for reservoir operations and for flows on the Blue River (below Green Mountain) and Colorado River (Kremmling and Dotsero) for the period of record analyzed in the SDEIS (1962-1982). For a complete update of reservoir operational hydrology see also Supplementary Hydrology Technical Report for Muddy Creek Reservoir (RCI, 1989).

The operational model also provided information on conditions in the reservoir, primarily end-of-month storage and pool elevation. Fig. 1.4

summarizes, on a monthly basis, Muddy Creek Reservoir storage and Fig. 1.5 presents reservoir pool elevations for the Metro Denver Lease with releases as required by the MOU. Even during a drought period such as 1977-1978, reservoir operations would not eliminate the conservation pool.

1.4.3.8. West Slope Demand. The River District-Denver Water Board Lease has a term of 25 years. After the lease expires, the yield of Muddy Creek Reservoir could be used to meet West Slope water needs, could continue to be leased to Denver, or could be used for a combination of these needs. A scenario consisting primarily of oil shale demand provides the most reasonable projection of West Slope needs 25 years in the future. Muddy Creek Reservoir would be operated to fulfill three primary demands under a West Slope scenario.

1. Supply industrial oil shale demand downstream on the Colorado River. For operational analysis this demand was assumed to be a uniform 930 acre-feet per month demand over 10 months of the year (July-April). May and June are excepted since natural flows in these months would normally support the demand.

2. Provide for 2,000 acre-feet of water supply for Middle Park Water Conservancy District, as required by the Intergovernmental Agreement.

3. Provide for augmentation releases to bring the July and August flows out of Muddy Creek Reservoir up to 150 cfs enhancing flows in Muddy Creek and the Colorado River downstream. The availability of these releases would be dependent upon storage in the reservoir, but they could be used for a variety of enhancement purposes if such enhancement promises to be significant (e.g. recreation, aquatic habitat).

As with the Metro Denver Lease scenario, a 13 cfs instream flow requirement on Muddy Creek below the dam was assumed.

Figure 1.6 summarizes, on a monthly basis, Muddy Creek Reservoir storage and Fig. 1.7 presents reservoir pool elevations for the West Slope demand. Even during a drought period such as 1977-1978, reservoir operations would not eliminate the conservation pool.

1.4.4. Comparison of Alternatives. The physical features and estimated costs of the two primary action alternatives, Rock Creek Site B and Muddy Creek Site C, are compared in Tables 1.1 and 1.2, respectively. The Rock Creek dam is proposed as a roller compacted concrete structure (see Section 2.4) and the Muddy Creek dam is an earth embankment dam (see Section 2.5). The cost per acre-foot value in Table 1.2 has been annualized assuming the estimated annual yield for 25 years at 10 percent interest.

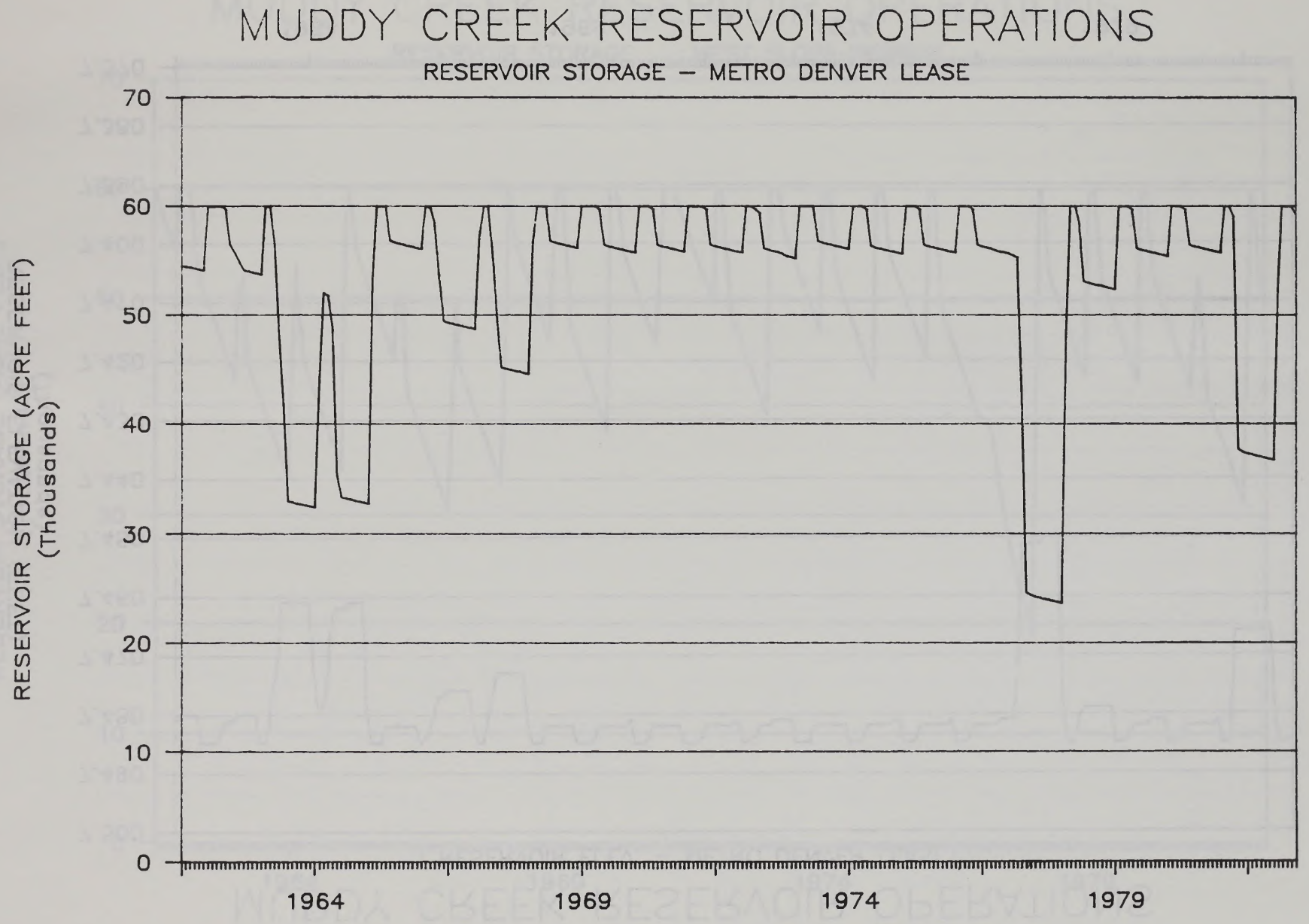


Fig. 1.4 Muddy Creek Reservoir storage with Metro Denver Lease.

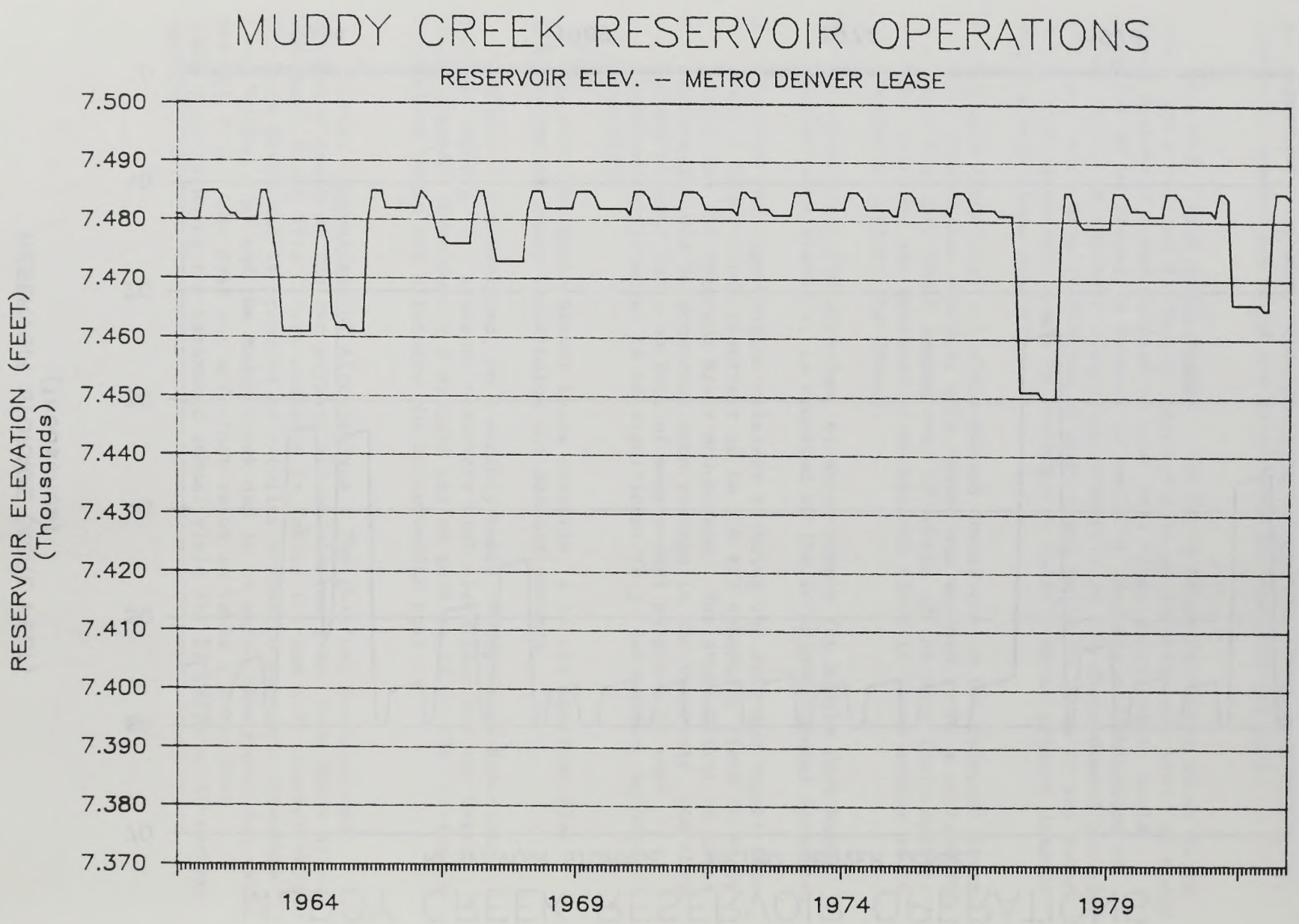


Fig. 1.5 Muddy Creek Reservoir elevation with Metro Denver Lease.

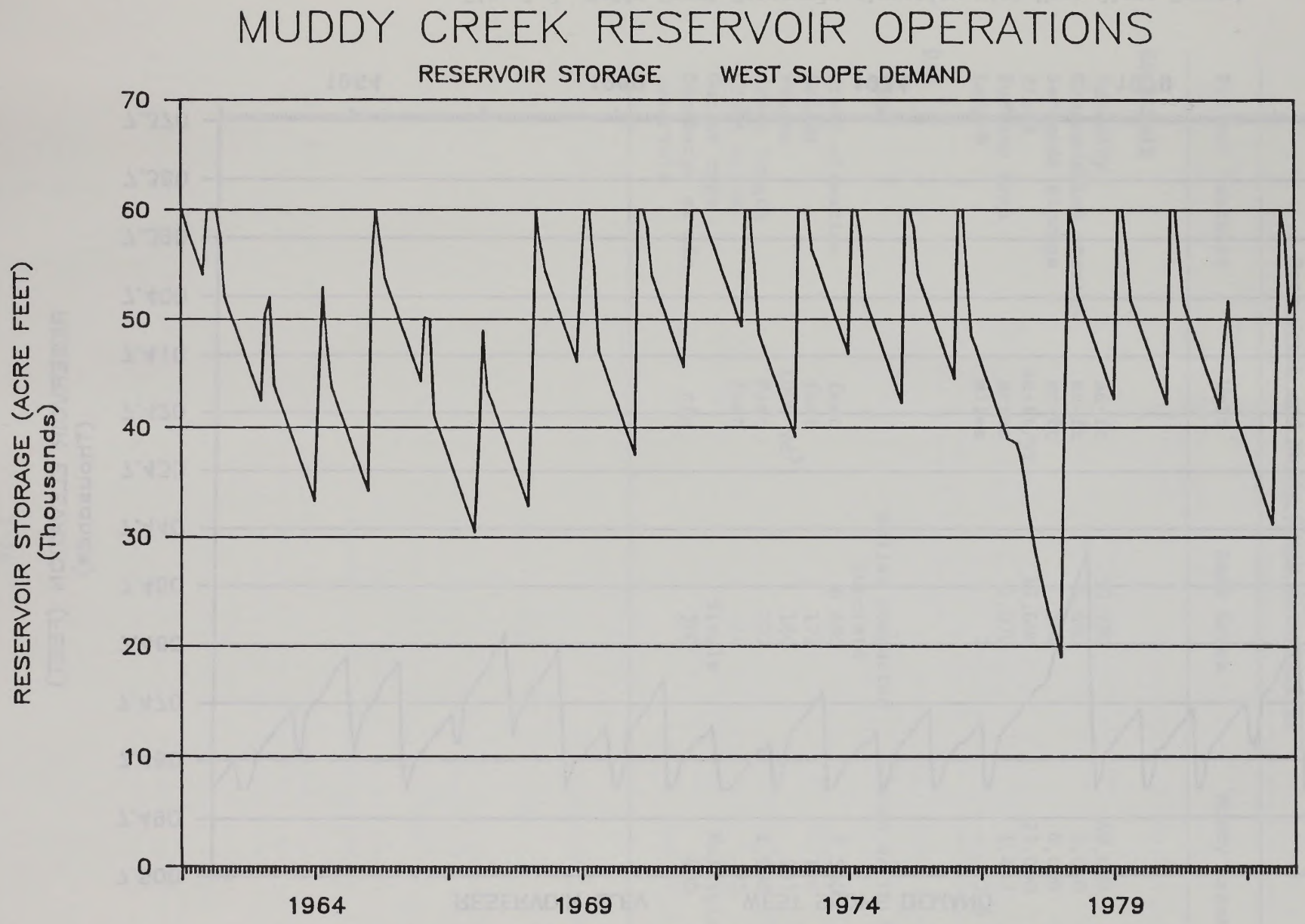


Fig. 1.6 Muddy Creek Reservoir storage with West Slope Demand.

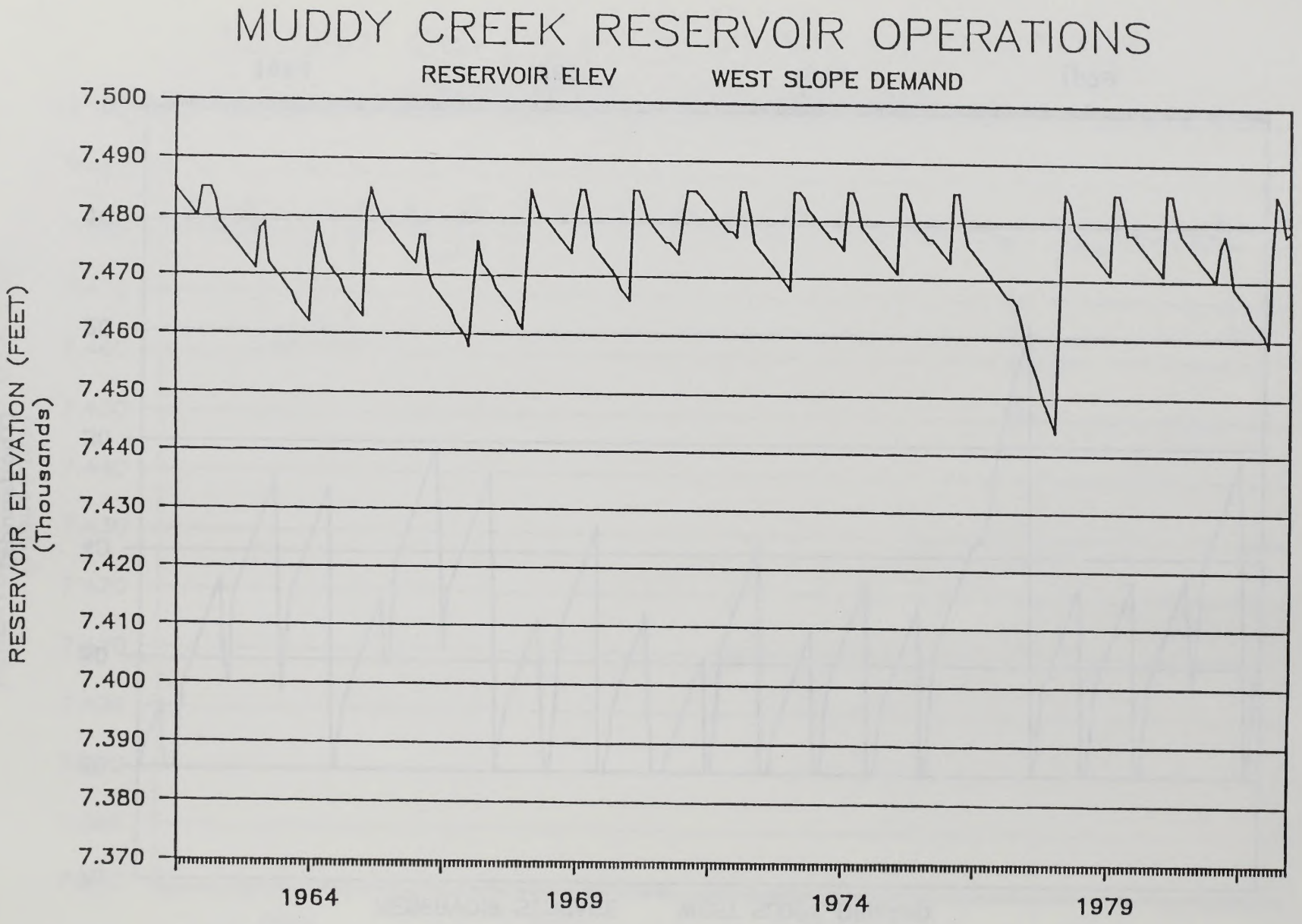


Fig. 1.7 Muddy Creek Reservoir elevation with West Slope Demand.

Table 1.1
Comparison of Physical Features
Rock Creek and Muddy Creek Alternatives

Project features	Unit	Rock Creek	Muddy Creek
Reservoir			
Capacity	ac-ft	50,700	60,000
Conservation storage	ac-ft	4,000	4,000
Sediment storage	ac-ft	500	6,000
Yield	ac-ft/yr	17,000	23,000
Surface area	acres	1,070	1,447
Length	miles	3	5.5
Dam			
Type	-	Roller compacted concrete	Zoned earth fill
Crest elevation	feet	8,690	7,500
Height	feet	172	120
Volume	1000 yd^3	180	997
Crest length	feet	707	1,900
Crest width	feet	16	25
Outlet type	-	Single	Multiple
Discharge at min. reservoir	cfs	300	400

Table 1.2
Comparison of Costs
Rock Creek and Muddy Creek Alternatives

Item	Rock Creek	Muddy Creek
Engineering and Permitting		
Design, permit and management	$2,773,000	$3,700,000
Mitigation and Land Acquisition	1,955,000	2,881,000
Subtotal	4,728,000	6,581,000
Site Cost		
Highway relocation	450,000	2,313,500
Other (Powerline and historic site relocation, campground)	642,000	1,000,000
Subtotal	1,092,000	3,313,500
Dam Construction		
Dam and facilities	10,564,000	13,438,000
Contingency	1,748,000	2,512,700
TOTAL PROJECT COST	$18,132,000	$25,845,200
COST PER ACRE-FOOT/YEAR (annualized)	$ 122	$ 129
Annual Operation and Maintenance	$ 100,000	$ 100,000

1.5 Impacts and Mitigation Summary

The potential positive and negative impacts of the Rock Creek and Muddy Creek alternatives are summarized in Table 1.3 in relation to the major engineering and environmental disciplines analyzed. The disclosure of impacts is based on Chapter 4.0 SDEIS, as amended. Proposed mitigation measures for potential impacts and unavoidable adverse impacts are also summarized in the table. The mitigation measures are based on Chapter 5.0 SDEIS, as amended. Since there are no impacts in the areas of geology and ground water, these disciplines do not appear in the table.

Table 1.3

Rock Creek/Upsized Muddy Creek Alternatives

Summary of Potential Positive and Negative Environmental Impacts, Mitigation Measures, and Unavoidable Adverse Impacts for Metro Denver Lease Demand 1/

	Reservoir Site	Soils	Surface Water	Water Quality
POTENTIAL IMPACTS	Rock Creek	1. 3.5 mi. or 18% shoreline unsuitable for recreation. 2. Increased erosion in areas where construction involves disturbance of soil left in place.	1. Channel stability concerns 2. Risk of dam failure to McCoy.	None
POTENTIAL IMPACTS	Muddy Creek Site C	1. Loss of 822 ac. of farmland. 2. 14 mi. or 49% of shoreline not suited for recreation. 3. Increased erosion in areas where construction involves disturbances of soil left in place.	1. Possible beneficial change in channel shape. 2. Risk of dam failure to Kremmling.	1. Potential eutrophication and turbidity in reservoir. 2. Small amount of salt loading from reservoir basin. 3. Small potential for selenium concentrations in fish.
MITIGATION	Rock Creek	1. No practical mitigation. 2. Implement site-specific plan for runoff, erosion, and sedimentation control. Implement revegetation plan.	1. Channel maintenance flow used in reservoir release schedule. 2. Inspection, monitoring, and emergency plan required by State Engr.	None
MITIGATION	Muddy Creek	1. Purchase of affected farmlands would mitigate econ. losses, but farmlands could not be replaced. 2. No practical mitigation. 3. Implement site-specific plan for runoff, erosion, and sedimentation control. Implement reveg. plan.	1. No mitigation required. 2. Inspection, monitoring, and emergency plan required by State Engr.	1. Monitoring and modeling during design and early years of operation. 2. None needed. 3. Monitor fish for selenium levels.
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Rock Creek	None	None	None
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Muddy Creek	Loss of farmlands of State or local importance.	None	Potential problems with chemical and physical integrity of reservoir.

1/ In general, West Slope Scenario impacts would be less than Metro-Denver Lease Scenario impacts.

Table 1.3 (continued)

Rock Creek/Upsized Muddy Creek Alternatives

Summary of Potential Positive and Negative Environmental Impacts, Mitigation Measures, and Unavoidable Adverse Impacts for Metro Denver Lease Demand 1/

	Reservoir Site	Air Quality	Vegetation	Land Use Plans
POTENTIAL IMPACTS	Rock Creek	1. Short-term impacts during construction.	1. 486 ac. of high quality wetland habitat lost.	1. Inundation of 805 ac. USFS land, 191 ac. CDOW land, and 74 ac. private land. 2. Amendment to Forest Plan. required.
	Muddy Creek Site C	1. Potential for increased fogs. 2. Short-term impacts during construction.	1. Loss of 892 ac. of wetland habitat of which about 283 acres were determined to be jurisdictional. 2. Impact to Federal listed endangered plant.	1. Inundation of 401 ac. BLM land and 1046 ac. private land. 2. Amendment to Resource Management Plan required.
MITIGATION	Rock Creek	1. Use of mufflers, filters and dust control techniques during construction.	1. Replacement-in-kind of value of wetlands by creation of new wetlands and rehab. of existing wetlands in poor condition on Egeria Creek.	1. Compensate private landowner for economic loss. 2. Amend Forest Plan.
	Muddy Creek	1. No practical mitigation. 2. Use of mufflers, filters and dust control techniques during construction.	1. Replacement-in-kind of value of wetlands by creation of new wetlands and rehab. of existing wetlands in poor condition on lower Muddy Creek. 2. Fencing of areas containing the Federal endangered plant to prevent trampling, 5-year study, inspect construction areas, and offsite protection.	1. Compensate private landowners for economic loss. 2. Amend Resource Management Plan.
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Rock Creek	None	None	Inundation of 1070 ac. would eliminate existing land use.
	Muddy Creek	None	None	Inundation of 1447 ac. would eliminate existing land use.

Table 1.3 (continued)

Rock Creek/Upsized Muddy Creek Alternatives

Summary of Potential Positive and Negative Environmental Impacts, Mitigation Measures, and Unavoidable Adverse Impacts for Metro Denver Lease Demand 1/

	Reservoir Site	Aquatic Biology	Wildlife
POTENTIAL IMPACTS	Rock Creek	1. Loss of 9 mi. of high quality trout stream. 2. Loss of self-sustaining brown trout population below the dam. 3. Opportunity for low to moderate reservoir fishery. 4. Conservation pool maintained in reservoir. 5. Cumulative impact to endangered fish. 6. Potential loss of spawning of brown trout from Colorado R.	1. Loss of 486 ac. wetland habitat and 1086 ac non-forested habitat and assoc. wildlife values. 2. Disturbance and loss of habitat reduce habitat capability in area surrounding reservoir. 3. Possibility of migrating deer and elk breaking through ice.
	Muddy Creek Site C	1. Potential for moderate fishery in reservoir. 2. Creation of tailwater fishery. 3. Conservation pool maintained in reservoir. 4. Cumulative impact to endangered fish.	1. Loss of about 1523 ac. of wetland and upland big game winter range in various categories. 2. Loss of 892 ac. wetland habitat and assoc. wildlife values. 3. Adverse impact to daily and annual big game movement. Possibility of migrating deer and elk breaking through ice. Possible auto-big game collisions on Hwy 40. 4. Beneficial impact to bald eagle from tailwater.
MITIGATION	Rock Creek	1. Egeria Cr. site mitigation would replace the physical habitat lost but would not totally replace the high quality of the fishery habitat. 2. Monitoring of reproduction and stocking to maintain a fishable resource. 3. No mitigation required. 4. No mitigation required. 5. Adhere to conservation measures. 6. Coordinate flows with other reservoirs to reduce impacts.	1. Replace lost HUs with land with appropriate habitat potential. 2. Forest Service will enforce restrictions on vehicular use off road. 3. Monitor big game populations during migration and provide fencing, if needed.
	Muddy Creek	1. No mitigation required. 2. No mitigation required. 3. No mitigation required. 4. Adhere to conservation measures.	1. Enhance carrying capacity in big game range; attract game to improved areas. 2. Replace lost HUs by acquiring appropriate private land. Better management of public lands for wildlife values. 3. Monitor big game populations during migration and provide fencing, if needed. Signs on Highway 40 warning of big game. Due to complexity of mitigation plan all impacts may not be totally mitigated. 4. No mitigation required.
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Rock Creek	A portion of loss of high quality fishery habitat in reservoir basin. A portion of loss of self-sustaining brown trout population below dam.	Some disturbance and loss of summer habitat capability not mitigated, but overall population numbers would not be reduced.
	Muddy Creek	None	Some disturbance and loss of winter habitat capability may not be totally mitigated.

Table 1.3 (continued)

Rock Creek/Upsized Muddy Creek Alternatives

Summary of Potential Positive and Negative Environmental Impacts, Mitigation Measures, and Unavoidable Adverse Impacts for Metro Denver Lease Demand 1/

	Reservoir Site	Grazing	Visual Resources	Recreation Resources
POTENTIAL IMPACTS	Rock Creek	1. Potential 11% loss of carrying capacity (132 AUMs) to one allotment.	1. Dam would exceed amended Forest Plan VQO for area.	1. Loss of trout stream. 2. Loss of high quality recreation experience. 3. Impact to historic stage stop. 4. Gain in 200,000 recreation visitor-days to reservoir and facilities to support visitation. 5. Potential for offsite development.
	Muddy Creek Site C	1. Loss of 2043 AUM's on private land.	1. Dam, access road and downstream material site would exceed VRM for area.	1. Gain of 175,000 recreation visitor-days to reservoir and a recreation facility. 2. Potential for private and offsite development. 3. Development of tailwater fishery.
MITIGATION	Rock Creek	1. Replace AUMs by purchase of private land, or range improvement to increase carrying capacity of remainder of allotment.	1. Amend Forest Plan	1. Development of fishery at Egeria Cr. would mitigate the quantity but not the quality of loss. 2. No mitigation possible. 3. Enter consultation with SHPO on mitigation. 4. No mitigation reqired. 5. No mitigation planned.
	Muddy Creek	1. Purchase private lands with purchase price compensating for forage loss.	1. Grading, sloping, contouring, and revegetation of material site and roadcut and amend Resource Management Plan.	1. No mitigation required. 2. No mitigation planned. 3. No mitigation planned.
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Rock Creek	None	None	Loss of high quality recreation experience would not be mitigated.
	Muddy Creek	None	None	None

Table 1.3 (continued)

Rock Creek/Upsized Muddy Creek Alternatives

Summary of Potential Positive and Negative Environmental Impacts, Mitigation Measures, and Unavoidable Adverse Impacts for Metro Denver Lease Demand 1/

	Reservoir Site	Cultural Resource	Social Environment	Economics	Transportation
POTENTIAL IMPACTS	Rock Creek	1. Disturbance of prehistoric lithic scatters. 2. High potential for disturbance of significant prehistoric sites. 3. Inundation of historic stage stop site.	1. Potential conflict between supporters and opponents. 2. Inundation of grazing and increase in recreation would decrease rural characteristics.	1. Recreation expenditures would have beneficial impact on 2-county region.	1. Short-term increase in vehicular traffic and traffic delays.
	Muddy Creek Site C	1. Disturbance of prehistoric lithic scatters. 2. High potential for disturbance of significant prehistoric sites. 3. High potential for disturbance of historically significant sites.	1. Loss of ranching operations. 2. Inundation of grazing and increase in recreation would decrease rural characteristics.	1. Recreation expenditures would have beneficial impact on 2-county region.	1. Short-term increase in vehicular traffic and traffic delays.
MITIGATION	Rock Creek	1. Intensive cultural resources inventory. 2. Intensive cultural resources inventory. 3. Consult with SHPO, interested parties, and ACHP.	1. No mitigation practical. 2. Replace AUMs by purchase of private land, or range improvement to increase carrying capacity of remainder of allotment.	1. No mitigation required.	1. Institute accepted traffic control measures.
	Muddy Creek	1. Intensive cultural resources inventory. 2. Intensive cultural resources inventory. 3. Consult with SHPO, interested parties, and ACHP.	1. Compensate landowners. 2. Purchase private lands with purchase price compensating for forage loss.	1. No mitigation required.	1. Institute accepted traffic control measures.
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS	Rock Creek	None	Potential conflict and long-term social change.	None	None
	Muddy Creek	None	Long-term social change.	None	None

1.6 The Preferred Alternative

The U.S. Forest Service and Bureau of Land Management preferred alternative is a 60,000 acre-foot reservoir at Site C on Muddy Creek.

1.7 The Environmentally Preferred Alternative

The environmentally preferred alternative is the No-Action Alternative.

1.8 Cumulative Impacts

Cumulative impacts are incremental impacts caused by the proposed project that add to the impacts of past, present, or reasonably foreseeable future projects, or to present trends. The affected environment for the Rock Creek/Muddy Creek project includes the Routt/Grand County area in particular, and the upper Colorado River system area in general. A variety of past, present, or future projects occur in the affected area, including other reservoirs, other water development and use, and present and proposed ski areas. Present trends include the depressed economy of western Grand County and increasing urbanization and dependence on recreation/tourism in the local economies.

Either alternative reservoir project would add to the cumulative impacts to the rare fish of the upper Colorado River Basin, to the cumulative loss of wetlands and wildlife habitat, and would add to the trend of a recreation oriented economy and detract from traditional ranching/mining/logging lifestyles. The Rock Creek alternative would add to the cumulative loss of self-sustaining stream fisheries and associated recreation, and to wildlife habitat capabilities of National Forest system lands. Rock Creek would impact use at existing reservoirs (Steamboat Lake and Stagecoach) more than Muddy Creek by competing directly for recreational users. Muddy Creek would probably have a more direct cumulative benefit to the economy of western Grand County than Rock Creek would have to either Grand or Routt counties.

1.9 The Bureau of Land Management Resource Management Plan and Amendments

1.9.1. BLM Resource Management Plan (RMP). The 1984 Kremmling Resource Management Plan lists livestock grazing, wildlife habitat, and water quality management as the priority land uses for the Muddy Creek Reservoir Area. A Right-of-Way for the Muddy Creek site would require an amendment to the Kremmling Management Plan to change approximately 1740 acres of livestock grazing, 30 acres of wildlife habitat, and 1.1 miles of water quality management priorities to the recreation management priority category to accommodate recreational use at the Muddy Creek Reservoir. The amendment would also change approximately 1,460 acres of Class II and 700 acres of Class III Visual Resource Management Class to Class IV. The management objectives for Class IV would be consistent with the construction of the project. The visual resource decision in the Kremmling Resource Management Plan would also be changed to establish consistency

with the Bureau Manual. This would remove Visual Resource Management classes as priority management areas and establish objectives for Visual Resource Management as described in Bureau Handbook H-8410-1. The proposed amendment to the Resource Management Plan is contained in the following section.

1.9.2. Proposed Kremmling Resource Management Plan Amendment. The Plan would be amended to accommodate the anticipated recreational use of the Muddy Creek Reservoir. The proposed amendment would change approximately 1,740 acres of livestock grazing, 30 acres of wildlife habitat and 1.1 miles of water quality management priorities to the recreation management priority category. The proposed amendment would also change approximately 1,460 acres of Class II and 700 acres of Class III Visual Resource Management Class to Class IV. The existing Visual Resource Decision in the Kremmling Resource Management Plan would be changed to establish consistency with the Bureau manual. The proposed amendment would remove Visual Resource Management Classes as priority management areas and establish objectives for Visual Resource Management as described in Bureau Handbook H-8410-1.

In order to reflect the changes mentioned above, the Resource Management Plan would be amended as follows:

1. Visual Resources:

   The second sentence under Part C, Support; on Page 15 of the Kremmling Resource Area Resource Management Plan would be removed in its entirety and replaced with the following (See Appendix B):

   The objective of the Visual Resources program is to ensure projects and other land uses are consistent with the following VRM Class Objectives.

   Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

   Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

   Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but

should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective. The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic element.

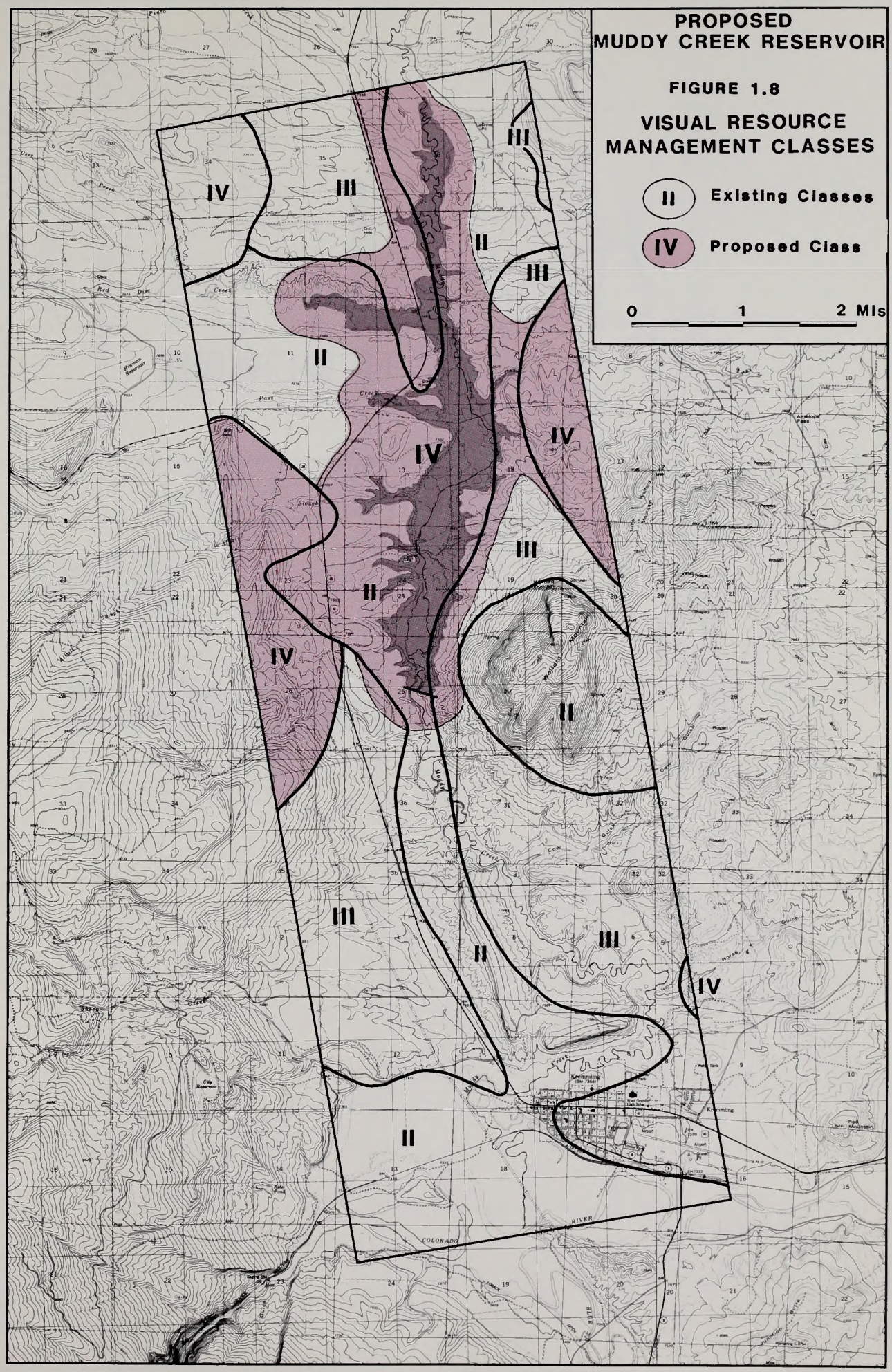
The discussion under "Visual Resource" on Page 28 of the Kremmling Resource Area Resource Management Plan would be removed in its entirety (See Appendix B).

These changes are administrative. They are made to establish consistency with current Bureau policy.

The existing Visual Resource Management Classes within the Muddy Creek Reservoir Area and the change to Visual Resource Management Class IV to accommodate construction of the reservoir are shown in Figure 1.8.

2. Livestock Grazing, Wildlife Habitat, Water Quality Management

The existing management priorities within the Muddy Creek Reservoir Area as shown in Figure 1.9 would be changed to a recreation management priority as shown in Figure 1.10.


PROPOSED
MUDDY CREEK RESERVOIR
FIGURE 1.8
VISUAL RESOURCE
MANAGEMENT CLASSES
II Existing Classes
IV Proposed Class
0 1 2 MIs
II
III
IV
Kremmling
COLORADO
RIVER

PROPOSED
MUDDY CREEK RESERVOIR

FIGURE 1.9

EXISTING LAND USE PRIORITIES

- WILDLIFE
- WATER
- PROTECTED AREA
- LIVESTOCK
- NO PRIORITY
- NO JURISDICTION

0 1 2 MIs

PROPOSED
MUDDY CREEK RESERVOIR

FIGURE 1.10

PROPOSED LAND USE PRIORITIES

- WILDLIFE
- WATER
- RECREATION
- PROTECTED AREA
- LIVESTOCK
- NO PRIORITY
- NO JURISDICTION
- RIGHT-OF-WAY BOUNDARY

0 1 2 MIs

2.0. SUPPLEMENTAL INFORMATION AND ERRATA FOR SDEIS

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2.0 SUPPLEMENTAL INFORMATION AND ERRATA FOR SDEIS

2.1 Introduction

This chapter provides supplemental information and errata for the Rock Creek/Muddy Creek Reservoir Supplementary Draft EIS (SDEIS) issued in August 1988. Supplementary information is provided to update the SDEIS when additional analyses were conducted after August 1988, or to provide information necessary to respond to a comment letter on the SDEIS when that information is too lengthy to be presented in the comment and response format of Chapter 7.0. Errata for the SDEIS are provided to correct errors noted during internal review or pointed out in agency or public comment letters (Chapter 7.0).

To facilitate relating supplemental information or errata to the SDEIS, this chapter contains a section for each of the major chapters of the SDEIS. Within each section of this chapter, information and errata are presented by SDEIS section number, in sequence.

2.2 Purpose and Need (SDEIS Chapter 1.0)

No supplementary information or errata.

2.3 Description of Alternatives (SDEIS Chapter 2.0)

2.5.6 Private Land Acquisition. Delete last sentence of section which refers to concessionaire opportunities.

2.4 Affected Environment (SDEIS Chapter 3.0)

3.2.2 Muddy Creek. Page 3-5, Change section heading and add the following:

3.2.2 Muddy Creek Geology - Geologic and Seismic Investigations. Geological and geotechnical studies for design and construction of dams/reservoirs are normally conducted in phases based on stages of project planning, needs of water users, levels of funding and technical requirements among other considerations. In general, the phases of study can be defined as follows:

1) PRE-FEASIBILITY (also termed APPRAISAL or RECONNAISSANCE) - Geological/geotechnical studies are intended to confirm the general suitability of a selected site for construction of a dam/reservoir. Major fatal flaws, if any, are identified.

2) FEASIBILITY - The technical feasibility of the dam/reservoir site is proven or disproven by appropriate levels of geological and geotechnical investigation. The fatal flaw analysis is refined. If no fatal flaws are discovered, the site is

considered feasible from a geological and geotechnical perspective. Technical requirements for additional geological and geotechnical investigations are defined.

3) DESIGN - Detailed geological and geotechnical studies are conducted which lead to development of project designs. Geotechnical studies during this phase are comprehensive and are intended to address significant concerns raised during this and the two preceding phases.

4) CONSTRUCTION - Geological and geotechnical information continues to be gathered throughout the construction process. Interpretations of geological and geotechnical conditions made during preceding phases are confirmed and/or modifications to the design are made based on current and complete data.

5) MONITORING - (Post-construction - The dam and reservoir are monitored through the life of the project to ensure the project is performing as designed. Modifications may be made if conditions warrant.

It is important to understand that geological and geotechnical studies are part of an iterative design process. Each phase builds on the preceding phases, especially in the pre-feasibility, feasibility and design phases. Continued collection of geological and geotechnical data during the construction phase offers the opportunity to confirm previous interpretations and, if necessary, to modify designs based on the most up-to-date geological and geotechnical information.

The geological, geotechnical and seismotectonic (earthquake hazard) studies summarized in the SDEIS were conducted at the feasibility level. These studies, therefore, were intended to confirm or deny the feasibility of the sites in question and to generally define the type and scope of studies necessary in the design phase. Feasibility studies were not intended to address all geological and geotechnical issues relating to project design.

3.2.3.6 Reservoir-Induced Seismicity. Last sentence should be corrected to read - "maximum volume = 60,000 acre-feet."

3.4.2.1 Rock Creek. Page 3-34, first paragraph of section, replace line 8 with: "Rosgen classification system (1985) used by the USFS, the reach immediately below Site A is..."

Page 3-37, paragraph 3, replace line 1 with: "The USFS maintenance flow quantification procedure estimates the range of..."

Page 3-37, paragraph 3, delete last sentence.

Page 3-38, paragraph 2, replace line 6 with: "...discharge (3 cfs) results from the small difference in drainage area between the..."

3.4.2.2 Muddy Creek. Page 3-40, paragraph 1, replace last sentence with: "Information on existing hydraulic conditions was obtained from a

simpler, more direct approach approved by the BLM."

Page 3-40, paragraph 2, replace line 2 with: "...the Rosgen stream classification procedure (1985). A C5 reach is a channel of mild..."

Page 3-40, paragraph 3, replace last sentence with: "This aggradation would minimize the potential for degradation problems, but could promote lateral instability as a result of bar formations deflecting current into the channel banks.

3.10.2. Muddy Creek. Page 3-93, replace the Land Ownership map with the following map (Figure 3.10.3).

2.5 Environmental Consequences (SDEIS Chapter 4.0)

4.3.2.2 Rock Creek Soils Mitigation. Page 4-8, replace fourth sentence of Section 4.3.2.2 with: "A general soil and water monitoring and mitigation plan developed by the USFS for Rock Creek is included at Appendix C."

Pages 4-9 and 4-103, add the following general information:

4.3.3 (and 4.4.3) Surface Water Resources - Rock Creek and Muddy Creek. Written and public meeting comments on the DEIS and SDEIS indicated considerable concern regarding potential project impacts on the Williams Fork River and the mainstem Colorado River between the Williams Fork and Blue Rivers. As a result of these concerns, additional discussion between the River District and the Denver Water Department on implementation of the Lease led to several modifications to the Denver Metro Lease scenario, primarily to avoid potential impacts to flows on the mainstem Colorado River between Williams Fork and the Blue River. The reservoir operational analysis in the SDEIS reflects these modifications.

In the SDEIS, reservoir demands for both Rock Creek and Muddy Creek reservoirs included supplying water to make up Green Mountain Reservoir water operations shortages to permit full utilization of the 100,000 acre-foot pool (i.e., to firm up Green Mountain water sales to a level in excess of the originally proposed 22,800 acre-foot annual sales level). Since publication of the SDEIS, the U. S. Bureau of Reclamation has issued a Record of Decision (October 1988) for the sale of 20,000 acre-feet annually. This, therefore, eliminated the opportunity to use Muddy Creek Reservoir for the purpose of supporting Green Mountain water operations, and all reference to this demand has been deleted from this final EIS. The revised hydrologic data in Appendix A reflect this change for Muddy Creek. Comparable changes have not been made to Rock Creek hydrologic data.

Additional modifications to the reservoir operational analysis were required following Section 7 consultation between the USFWS and BLM, as discussed in the preceding chapter (Section 1.4.3.6). Revised hydrologic data for Muddy Creek (Metro Denver Lease Demand) are presented in Appendix A. For a complete update of reservoir operational hydrology see also Supplementary Hydrology Technical Report for Muddy Creek Reservoir (RCI, 1989). Since these changes were required to support final mitigation

planning for the preferred alternative (Muddy Creek), comparable changes were not made to the Rock Creek hydrologic data.

Williams Fork and Colorado Rivers.

As noted in the response to several comment letters (Chapters 6.0 and 7.0 FEIS), a substitution of water involving Green Mountain Reservoir and the proposed reservoir will be the subject of an agreement between the United States (Department of Interior), the Denver Water Board, and appropriate other entities. Conditions under which substitution can be made will require specific approval of the Secretary of the Interior (acting through the Bureau of Reclamation) prior to the implementation of this agreement. The FEIS is the Bureau of Reclamation's NEPA compliance document for this proposed action. If future substitutions or exchanges are proposed which have impacts different from those disclosed, additional NEPA compliance will be required by the Secretary of the Interior.

The Agreement will be limited to a substitution of water between Green Mountain and Muddy Creek Reservoirs. With Williams Fork Reservoir, Denver currently has the ability to fully utilize their diversions upstream of Kremmling. This project will not change the historic functions of Williams Fork Reservoir and will not change the diversions by the Moffat Tunnel diversion system. Therefore, the proposed project will not impact the Williams Fork River or the Williams Fork to Blue River reach of the Colorado River.

Blue River.

Differences in flow on the Blue River are discussed in Section 4.3.3.4 SDEIS and the potential for water quality impacts on the Blue River is assessed in Section 4.3.3.5 SDEIS. For the Blue River below Dillon Reservoir, pre and post project flows were developed to support potential water quality and aquatic impacts analysis. Because of diversions through the Roberts Tunnel above Dillon Reservoir, the Blue River below Dillon could experience fewer periods of flows which exceed the minimum 50 cfs release from Dillon. Because of anticipated reservoir operations, and substitutions, flow changes would occur mostly in the late summer and early fall of dry years. For the 1962-1982 period analyzed, changes would have occurred only 7 times in 21 years.

Using an EPA water quality model for the Blue River, the potential impacts of changes in flows resulting from a Metro Denver Lease demand were analyzed. The analysis of trace metals indicates a slight decrease in concentrations in the Blue River below Dillon Reservoir, in July, August, and September of average and dry years, primarily because of reduced releases from Dillon Reservoir.

4.3.3.2 Metro Denver Lease - Rock Creek Conditions Below the Dam. Page 4-11, insert the following material after the section heading, Hydraulics and Channel Stability:

The Forest Service considered three methods for determining instream flows for maintaining channel capacity. They differ in concept and application.

Figure 3.10.3
LAND OWNERSHIP
(Muddy Creek Site)

B.L.M.

STATE

PRIVATE

URBAN

0 1/2 1 Mile

(Source: Bureau of Land Management, 1986)

PROPOSED MUDDY CREEK RESERVOIR

STUDY AREA BOUNDARY

1. Meyer Peter/Muller (MPM). This is an empirical estimation method based on engineering laboratory studies to estimate sediment transport capacity.

2. Chapter 30 (FSH 2509.17). This is also an empirical estimation method. It is different from the MPM method by being based on geomorphic (channel-forming) processes that may be observed in the field. It computes a bankfull discharge needed for a specific period of time, plus rising and recession flows and base flows, needed to maintain channel capacity against sediment deposition and vegetation encroachment.

3. Modified Chapter 30 (Method A). This method uses the same general assumptions and computes the same classes of flow as the Chapter 30 method. However, it is based primarily on field measurements of channel form and materials at specific sites. It is therefore a method involving direct field determination rather than one of strictly indirect estimation.

In the Draft EIS, Section 3.4.2.1 used the original Forest Service Chapter 30 method (FSH 2509.17) to estimate instream flows needed to maintain pre-dam channel capacity in Rock Creek. In contrast, Section 4.3.3.2 used a modified Meyer-Peter/Muller (MPM) method to estimate post-dam instream flow needs. This was done because the Chapter 30 method is based on the assumption that sediment supply does not change. Since a dam and reservoir would trap and store sediment coming from upstream, the Chapter 30 method might overestimate the instream flows that would be needed to maintain channel capacity.

When the Draft EIS was prepared, it seemed reasonable to use the modified MPM method because it was calibrated to Rock Creek flow-sediment data. However, knowledge of flow-sediment dynamics has evolved. Recent data collected by the Forest Service indicate that the MPM method underestimates instream flows required to maintain channel capacity in gravel-bed streams. This issue is important because the 1897 Organic Administration Act, which is the founding legislation for the National Forests, requires the USFS to maintain favorable conditions of water flow (16 USC 473-475, 477-482, 551).

Since the Draft EIS was completed, the USFS has begun developing the method referred to above as the Modified Chapter 30 (Method A) for determining instream flows to maintain channel capacity. It is based on actual field measurements and would probably require a range of instream flows higher than those which would result from the application of MPM. If the analysis were done today, the USFS would use the Modified Chapter 30 (Method A) to determine the instream flows needed to maintain the channel capacity of Rock Creek below the dam.

Page 4-16, paragraph 2, replace line 4 with: "...procedure that may not apply to the unique site-..."

Page 4-16, paragraph 3, replace lines 8-9 with: "...tions. Consequently the procedure is used as a first approximation of the necessary channel maintenance flows since a reservoir will trap upstream..."

Page 4-16, paragraph 4, delete the first sentence.

Page 4-16, paragraph 4, replace line 7 with: "...generally true for the coarser sizes of the bedload transport, as..."

Page 4-16, paragraph 5, replace lines 1 and 2 with: "In the case of Rock Creek, several tributaries including one major one, Egeria Creek, enter below the proposed dam. Field reconnaissance of the entire stream between the proposed dam and the Forest boundary did not locate any large sediment source. Aerial reconnaissance of the Egeria Creek-Rock..."

Page 4-17, paragraph 2, replace last sentence with: "Results indicated that calculated transport capacity exceeded the measured transport rate for all sediment sizes finer than the two coarsest size fractions."

Page 4-17, paragraph 4, delete last sentence.

Page 4-18, replace lines 1 and 2 at top of page with: "...A may be almost as effective a channel maintenance flow as 190 cfs for the pre-project condition."

Page 4-18, paragraph 2, delete second sentence.

Page 4-18, paragraph 3, replace line 7 with: "...a 20 cfs per day drawdown rate and a 16-..."

Page 4-18, paragraph 4, replace third line with: "...encroachment. However, at Site B it may be more effective to provide..."

Page 4-18, paragraph 4, replace line 15 with: "...hydrograph. In order to minimize the need for mechanical maintenance..."

Page 4-18, paragraph 4, replace next to last line with: "...and is considered almost as effective as the pre-project channel maintenance..."

Page 4-18, paragraph 5, replace first two sentences with: "Under pre-project conditions, calculated sediment transport capacity in Rock Creek exceeded measured transport rates except for coarse sediment size fractions."

Page 4-20, paragraph 1, replace line 9 with: "...boundary near the Town of McCoy, the recommended bypass flows plus scheduled releases should mini-..."

Page 4-20, add the following sentence at the end of paragraph 3: "The stream below the reservoir would be monitored to insure that downstream conditions remained stable and as predicted."

4.3.3.4 (and 4.4.3.4) Metro Denver Lease - Hydrology of Other Streams - Blue River. Trans Mountain Hydro Corp is the owner and operator of two small hydroelectric projects on the Blue River below Green Mountain Reservoir and could be impacted by proposed reservoir operations. Reduction in flows on the Blue River below Green Mountain reservoir could reduce the ability to generate power. However, the FERC licensing document for the project(s) recognizes that the project is downstream from Green Mountain Reservoir and is subject to fluctuating water releases for which neither the Department of the Interior nor the Bureau of Reclamation would be responsible. Trans Mountain Hydro Corp has a direct flow right but no rights to the waters stored by the United States in Green Mountain Reservoir. In addition, Trans Mountain Hydro does not have any headwater benefit arrangement with the Bureau of Reclamation and is not compensating the United States for any such headwater benefits it might be realizing in the operation of its Blue River projects. The substitution contemplated by the applicant is a substitution of stored water in Muddy Creek Reservoir for stored water in Green Mountain Reservoir and would have no impact on direct flow rights.

4.3.3.5 Metro Denver Lease - Rock Creek Water Quality. Page 4-42, fourth paragraph, fourth line. The word "and" should be replaced by "out."

4.4.1.1 Geology - Muddy Creek Reservoir. Page 4-98, paragraph 2, insert before last sentence: "Based on studies summarized in the DEIS, bedrock underlying the slide debris at the Muddy Creek left abutment is inferred to be stable and capable of supporting the abutment and foundation of the proposed dam. Landslide debris is apparently derived from slabbing and toppling of crystalline rock above the Williams Fork Thrust Fault. This type of instability is not necessarily a significant hazard to the proposed dam. Landslide debris in the abutment area could be removed during construction and remedial measures can be employed to stabilize slopes above the dam. Additional studies will be required during the design phase to assess the impact of landsliding on the left abutment of the Muddy Creek site."

4.4.2.2 Muddy Creek Soils Mitigation. Page 4-101, replace fourth sentence of Section 4.4.2.2 with: "A general soil and water monitoring and mitigation plan developed by the USFS for Rock Creek is included at Appendix C. A similar plan would be applicable to the Muddy Creek site and will be required by the BLM prior to permitting the project."

4.4.3.3 Metro Denver Lease - Muddy Creek Reservoir. Page 4-118, Impacts and Mitigation Summary, insert in fourth line: "...this impact. A typical Emergency Preparedness Plan includes: (1) equipment available for plan implementation, (2) a notification procedure for local and State emergency agencies, (3) a dam failure inundation map, and (4) a procedure for warning nearby local residents if failure of the dam is imminent."

Page 4-119, paragraph 3, line 8, Rock Creek should be Muddy Creek.

4.4.3.5 Metro Denver Lease - Muddy Creek Water Quality. Page 4-129, first paragraph, change last two lines to read: "...be stocked in the reservoir, but monitoring of selenium levels of the fish will be conducted

annually for five years following dam closure to assure that a health hazard does not occur."

Page 4-129, third paragraph, first line. The word "measurable" should be replaced by "significant."

4.4.3.11 West Slope Demand - Rock Creek Water Quality. Page 4-144. "Rock Creek" should be replaced by "Muddy Creek" in section heading.

4.4.6.2 Anticipated Impacts - Metro Denver Lease. Page 4-152, add in the following after the first full paragraph:

A jurisdictional wetlands inventory was completed during the summer of 1989 (Grah, 1989) on both the reservoir inundation area and the mitigation area below the dam site. The study was implemented to verify some of the information used in developing the mitigation plan for the Corps of Engineers. Jurisdictional wetlands are defined by the Corps of Engineers as those areas that meet specific soil, hydrology, and vegetation requirements presented in the Federal Manual For Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation 1989) and that are regulated by the Corps of Engineers. Of the total 892 acres of Muddy Creek bottomland exhibiting wetland character, approximately 300 acres meet the requirement of jurisdictional wetland classification.

The Cowardin et al. (1979) classification system was initially used to identify areas with wetland characteristics. Not all of these areas qualify as jurisdictional wetlands using the three parameter criteria. These areas are referred to as "wetland habitat" and jurisdictional wetlands are a subset of wetland habitat.

The functional values of wetlands habitat and jurisdictional wetlands include groundwater discharge and recharge, flood storage and desynchronization, shoreline anchoring and dissipation of erosive forces, sediment trapping, nutrient retention and removal, food chain support, wildlife and fish habitat, and active and passive recreation and heritage value (Adamus and Stockwell, 1983). Of these functional values, only wildlife habitat will be substantially impacted by the proposed Muddy Creek Reservoir project. This conclusion is based on the following:

1) The wetlands habitat and jurisdictional wetlands that will be inundated on the proposed project area were documented to be in generally poor condition during the field investigations for the project EIS. Due to the poor conditions, the overall functional value of these areas is low. Land management activities have resulted in compacted soils, overgrazing, vegetation cropping, and subsequent lowering of the natural water table due to widening and incisement of Muddy Creek below its floodplain. Recent analysis completed by Bio/West, Inc. and Resource Consultants, Inc. (Grah, 1989) provides evidence that Muddy Creek has abandoned the valley flat area as an active floodplain due to channel widening and incisement. In general, point bars and an incipient floodplain are being newly constructed by the creek at a level two to three feet below the abandoned floodplain level; thus, also lowering the water table.

2) Based on information presented by Adamus and Stockwell (1983), the reservoir will replace or improve most of the low functional values of the inundated wetland habitat and jurisdictional wetlands. These functional values include the following:

Groundwater Discharge: This functional value involves the role wetlands play in regulating stream flows through groundwater discharge. At present, it appears that the Muddy Creek wetlands do not retain as much of the surface water runoff as would a wetland in better condition. Hence, a reduced quantity of surface water infiltrates or percolates into the groundwater. Therefore, groundwater discharge from the Muddy Creek wetlands to the creek is reduced from levels associated with a wetland in good condition. The reservoir will fully replace or exceed the value of this low-flow augmentation. First, the reservoir will increase the hydraulic head of groundwater above and below the reservoir. Such an increase in hydraulic head could effectively raise the water table below the dam thereby increasing baseflow augmentation as well as consumptive use by the hydrophytes. Second, reservoir management will involve releasing greater flows than that of the current situation during low flow periods. Therefore, the presence and operation of the reservoir will replace or exceed the current groundwater discharge value of the inundated wetlands.

Groundwater Recharge: Although Muddy Creek provides some groundwater recharge, there is a net loss of groundwater in the Muddy Creek basin due to consumptive use by hydrophytes, and the widening and incisement of the stream channel which has caused a reduction in hydraulic head in wetlands adjacent to the stream. The reservoir will greatly increase the hydraulic head and provide a large source of water that will effectively cause groundwater mounding in the reservoir's vicinity. The groundwater mounding essentially represents an increase in groundwater recharge. Therefore, the reservoir will not only replace the recharge functional value, but will greatly enhance the existing rate of groundwater recharge.

Flood Storage and Desynchronization: The wetlands that will be impacted occur on the Muddy Creek floodplain. On the average, streams overtop their banks and frequently inundate their floodplains one or more times in 1.5 years. When a stream overtops its banks, the vegetation on the floodplain slows the velocity of water flow and detains a portion of the flood flow. These processes effectively slow flood flow and desynchronize the flow to minimize damage to downstream areas due to an otherwise "flashy" flow regime. The effectiveness of the wetland depends on the density of cover and the horizontal and vertical structure of the cover. As indicated, the wetlands associated with Muddy Creek have been overgrazed to the point where flood storage and desynchronization values are relatively low. Further, Muddy Creek does not overtop its banks as often as most hydraulically stable streams due to widening and incisement which additionally reduces functional value of the wetlands. Reservoirs have been extensively used for flood control and their value in flood storage and desynchronization is high. Therefore, the Muddy Creek Reservoir will more than fully replace this functional value of the wetlands lost with construction of the Muddy Creek project.

Shoreline Anchoring and Dissipation of Erosive Forces: The widening and incisement of Muddy Creek has left a substantial portion of its banks

bare. Most of the vegetation that once lined the creek has either been left above the stream, out of effective influence in terms of bank protection, or has sloughed into the creek due to bank erosion. Therefore, the existing wetlands are not of high value in regard to shoreline anchoring and dissipation of erosive forces. The reservoir will inundate and replace an incised segment of Muddy Creek. Because reservoirs have low erosive energy, the reservoir will more than substitute for the reduced value of the inundated wetlands.

Sediment Trapping: The ability of a wetland to trap sediment is directly and positively related to its ability to store and desynchronize flood waters. Therefore, the discussion presented above for flood storage and desynchronization also applies to sediment trapping. Since the Muddy Creek wetlands are generally in very poor condition, their sediment trapping effectiveness is low. This especially applies to trapping of sediments due to overland flow and flooding of the valley flat area. Wetlands, such as in the Muddy Creek basin, with low vegetative cover and density make poor sediment filters. Reservoirs are well known for their ability to trap sediments. Reservoir design life is based on the calculated time frame within which a reservoir is likely to be rendered ineffective due to sediment deposition and reduced water storage capacity. Consequently, the reservoir's ability to trap sediment will greatly exceed the existing wetlands ability by several orders of magnitude.

Nutrient Retention and Removal: A large portion of nutrient inflow into a wetland occurs as chemical species attached to sediment particles which are trapped by the wetland vegetation as described above. Currently, the degraded condition of the Muddy Creek wetlands has greatly reduced this functional value. These sediment particles will sink in and be retained by the reservoir. Dissolved nutrients are retained by wetlands through uptake by vegetation. Since the Muddy Creek wetlands vegetation is in poor condition, the actual magnitude of dissolved nutrient uptake is greatly reduced as compared to a wetland in good condition. The greater density of dissolved nutrients will cause the solution to sink to the bottom of the reservoir into the conservation pool. Thus, a large portion of the nutrient inflow will be trapped in the conservation pool. Reservoirs act as thermal regulators and nutrient sinks so that short-term fluctuations in water quality, which are characteristic of natural riverine systems are regulated (Petts, 1984). Reservoirs can be very efficient nutrient traps. For example, Schrieber and Rausch (1979) reported a 50 percent reduction in mean inflow concentrations of orthophosphate and a four-fold reduction in the total suspended sediment phosphorus between the inflow and outflow on Callahan Reservoir, Missouri. High value wetlands also function as efficient nutrient traps. However, due to the poor quality of the Muddy Creek wetlands, nutrient retention is minimal and a reservoir would function as a more efficient nutrient sink. These processes indicate that the Muddy Creek reservoir's capacity for nutrient retention will greatly exceed the capacity of the existing wetlands.

Food Chain Support: It is very difficult to compare the functional values for a wetland in poor condition with a reservoir since both support very different food links, chains, and webs. It is very likely that the reservoir will offer greater but different values than the wetlands in poor condition.

Wildlife and Fish Habitat: The aquatic biology section of the SDEIS (USDI/USDA 1988) establishes that the existing fishery of Muddy Creek is poor to non-existent. Similarly, Habitat Evaluation Procedure (HEP) studies indicated a poor value in terms of wildlife habitat provided by these wetlands. However, the poor value of habitat over the area to be inundated adds up to a substantial quantity of habitat units that will be lost with wetland inundation. The reservoir will not replace or substitute for these units. Therefore, a reduction and loss of this value will occur with reservoir construction and operation. However, the reservoir will provide a large area of open water habitat type.

Heritage and Recreation Values: Wetlands are relatively rare and unique in the region. The contrast in line, form, color, and texture with the surrounding upland vegetation provides a visually pleasing and interesting landscape which most people value. In addition, many people enjoy and appreciate wetlands as unique biological and physical systems. Further, a major value of wetlands lies in the passive and active recreation opportunities that they offer such as boating and water fowl hunting. Unfortunately, the poor condition of the Muddy Creek wetlands greatly reduces their heritage value potential. Reservoirs also provide visually pleasing and interesting landscapes due to similar contrasts and provide substantially greater recreation opportunities in terms of fishing, sight seeing, boating, etc. Therefore, the heritage and recreation value provided by the Muddy Creek Reservoir will greatly exceed the value provided by the existing wetlands.

3) In summary, the only functional value losses due to inundation of wetland habitat and jurisdictional wetlands will relate to wildlife habitat. The reservoir will either replace in equivalence or in excess the other functional values associated with the existing Muddy Creek wetlands.

4.4.7.1. Anticipated Impacts - Metro Denver Lease Demand. Page 4-154, second paragraph, second sentence should read: "...instant fishery below the dam since temperature would be acceptable to trout. Habitat conditions would not be excellent due to the poor nature of the present riparian vegetation. Habitat improvement would enhance the suitability of the tailwater as a fishery."

Page 4-155, add in to Muddy Creek Reservoir section at the end: As with Rock Creek Reservoir, the River District has agreed to provide $10,000 annually for stocking of the reservoir as enhancement.

4.4.8.2 Wildlife Mitigation. Page 4-163, delete third item from top of page that begins: "North, South, and on top of..."

4.4.9 Land Use Plans (Muddy Creek). Page 4-164, second paragraph, first sentence should read: "Approximately 1,460 acres of public land within the reservoir area are in Visual Resource Class II and 700 acres are in Visual Resource Class III."

4.4.12 Recreational Resources. Last paragraph, page 4-169. Delete last paragraph and replace with following: The BLM will require that the River District be responsible for managing the proposed campground on the

reservoir and the parking area near the dam. It is expected that the River District will arrange for management by the Colorado Division of Parks and Outdoor Recreation. These facilities would provide the necessary services for anticipated visitor use of the area.

4.5.4.4 Future Projects. Second paragraph, first sentence. Delete the phrase "if Rock Creek was selected and constructed at this time."

2.6 Mitigation (SDEIS Chapter 5.0)

5.2.6. Cultural Resources. Page 5-16, add in to beginning of first sentence: "Following consultation with the Colorado State Historic Preservation Officer (SHPO), . . ."

Add in to third sentence: ". . . are located, following consultation with the SHPO, the site . . ."

5.3.2 Water Quality. Add the following paragraph to the bottom of page 5-17: Under contract to the River District, the U. S. Geological Survey will monitor water quality in the reservoir so that if problems are identified, corrective action in the operation plan can be evaluated. The monitoring will be conducted at three sites (near inflow, mid-reservoir, and near dam) on the surface of the reservoir and at two sites (mid-reservoir and near dam) on the bottom of the reservoir. Sampling will be conducted three times each year (May, July, and September) and will include nutrients, major ions, selenium, chlorophyll a, phytoplankton, and trace metals. Lake profiles of temperature, specific conductance, pH, dissolved oxygen, and secchi disc readings will be done at all sites each visit.

5.3.4 Wildlife. Page 5-20, add in to last partial paragraph, following first sentence: The mitigation goal is to replace all lost wildlife values with inkind values.

5.3.4.1. Lower Muddy Creek. Page 5-21 and the first paragraph of page 5-23 should be replaced with the following update of the lower Muddy Creek mitigation site and HEP evaluation.

5.3.4.1. Lower Muddy Creek. Approximately 390 acres of bottomland and 20 acres of stream in the proposed lower Muddy Creek mitigation site is of prime interest for mitigating wetland associated impacts. Of those acres, approximately 149 acres are managed by the BLM, 161 acres are privately owned and 80 acres are owned by the State of Colorado. The site has an average elevation of about 7350 feet. Several landowners are involved with the 161 acres of private land. Nearly all of acreages involved are used for the grazing of cattle and horses, either privately or as part of Federal or State grazing leases. The 161 acres of private land are part of three larger ownership blocks that total approximately 640 acres. It is likely that an entire block will have to be purchased in order to obtain the acres of interest at a cost of about $462,000.

Muddy Creek has degraded considerably, leaving many sections of stream bank high and dry. The area has been very heavily grazed by wild and domestic ungulates. Consequently, most of the riparian habitat is in

relatively poor condition. Opportunity exists to replace the willow and cottonwood riparian habitat on the private or government lands and to reorient the management of other bottomlands in order to facilitate restoration of the riparian zone. The acres of interest could also be managed to replace some of the lost acres of naturally and artificially irrigated meadow. There is ample room for establishing small ponds and slow moving stream and cattail habitat within the bottomlands on the privately owned land. All 390 acres of bottomland being considered plus additional acreage upslope could be improved for wintering big game animals, particularly deer. Improvement on the flat bottomlands is not the first choice for improving winter range, but rather a side benefit.

Potential impacts at Muddy Creek are expressed in terms of acres inundated or otherwise affected for certain wetland habitat types, but the wildlife values associated with these types are expressed in terms of Habitat Units. The reader is referred to Section 5.2.4 SDEIS for a discussion on Habitat Units (HU's) and interpretation of the information in Table 5.3.4.1. The same assumptions and techniques referred to in the section on Rock Creek apply to Muddy Creek. A separate technical report (Pekins and Hugie, 1986) details the HEP study conducted at Muddy Creek to determine the HU's present at the proposed reservoir site.

A HEP study conducted on the proposed mitigation sites in 1987 (Hugie and Masslich, 1988) quantified the present HU's for wildlife indicator species. Table 5.3.4.1 compares HU's lost with the proposed reservoir to HUs available at the lower Muddy Creek mitigation site. The table indicates that HU's lost will be totally replaced for beaver and yellow warbler by using 173 acres and 161 acres, respectively, of the lower Muddy Creek site. In fact, considerable excess will occur for both species. Mitigation for the elk model will require 364 acres of the site (out of the total 390 acres of bottomland) and will produce an excess of 15 HU's.

Following analysis and review of the initial HEP results, it was decided that all the models used were driven to a large extent by vegetal parameters associated with woody species, and that an additional model was needed to further quantify wildlife habitat value associated with the wet sub-irrigated meadow cover type. Therefore, a generalized model, called the General Wetlands Habitat Model (GWH), was developed for this purpose. The model used optimum values when conditions were similar to pristine or lightly grazed wet meadow habitat in surrounding or similar areas. Mitigation for the GWH model would require all of the 210 acres of wet subirrigated meadow habitat type in the mitigation area and would produce 163 HU's of GWH habitat, 23 short of fully mitigating for the 186 HU's lost on the project area (Tables 5.3.4.1 and 5.3.4.2). Assuming that the lands used to mitigate these 23 habitat units will be in similar or worse condition to the best wet meadow in the reservoir basin (i.e., HSI = 0.470), approximately 43 additional acres will be needed. This additional land will be acquired from one or a combination of the following areas in order of preference: 1) upland areas within the lower Muddy Creek mitigation area that can be irrigated and converted to wetland habitat; 2) wetlands within the lower Muddy Creek drainage south of the present mitigation area; 3) wetlands occupying tributary drainages on the perimeter of the proposed reservoir; and 4) offsite wetlands. If additional land is required, it will be acquired during the purchase of the land necessary for

the operation of the reservoir prior to construction. Purchase of this additional mitigation land could cost up to $112,500. This additional mitigation area, in conjunction with the primary mitigation area, would result in total mitigation of all wetland wildlife values impacted by the proposed reservoir.

In tracking the contents of this FEIS with past drafts and related documents, readers may have noted changes in the HEP values presented. There are a number of reasons for these changes. All reasons and their associated changes relate to making the document as correct and responsive to concerns of the public involved as possible. Some of the reasons for the changes include changes in the applicant's proposal in reservoir size, modification of models to meet the Muddy Creek environment more closely, constant refinement of data, rounding of figures (particularly HSI's) and the need to respond to specific agency concerns. The HEP process was intended to be a dynamic process or tool for quantifying habitat quality. To that end, the HEP data presented are consistent and as correct as possible within the constraints of the project. One other point should be made, HEP data including the HU's generated for this project should be viewed within a range of plus or minus 10 to 20 percent because of sampling error.

Replace Tables 5.3.4.1 and 5.3.4.2 with the following to update and clarify the HEP results. See Chapter 3.0 for a summary of the final mitigation plan and additional information on wildlife and wetlands mitigation requirements.

The U. S. Fish and Wildlife Service (USFWS) provided comments on the SDEIS by letter dated November 21, 1988 (see Chapter 7.0, Comment Letter No. 103). Subsequently, the USFWS provided comments on the Draft Final Mitigation Plan for the Muddy Creek Reservoir (Colorado Field Office, February 14, 1988). The latter comment letter expressed concerns with wetlands issues, specifically, "the inconsistency in the Habitat Evaluation Procedures (HEP) results, the adequacy of the general wetlands habitat model, and the adequacy of the number of acres proposed to replace habitat values lost in the wet sub-irrigated meadow of the inundation area" (see Appendix C). HEP analysis and the general wetlands habitat model are discussed above. The results of the U. S. Army Corps of Engineers jurisdictional wetlands survey are discussed in Section 2.5 and summarized in Section 3.2.

2.7 Literature Cited (SDEIS Chapter 9.0). The following supplementary references should be added:

Adamus, P. R., and L. T. Stockwell, 1983, A Method for Wetland Functional Assessment, Volumes 1 and 2, Report No. FHWA-IP-82-23 and FHWA-IP-82-24. U. S. Department of Transportation, Federal Highway Administration, Washington, D.C.

Bio/West, Inc., 1989, Mitigation Plan for the Muddy Creek Reservoir Project. For BLM Colorado State Office and U. S. Forest Service Rocky Mountain Region, Lakewood, Colorado.

Table 5.3.4.1.

Summary of the Habitat Evaluation Procedures (HEP) analysis conducted on the proposed Muddy Creek wetland habitat mitigation sites.

HEP Evaluation Species	Muddy Creek Reservoir Site			Totals from Mitigation Sites						Net Change[2] (HUs)
				Existing			Post-Management			
	HSI[1]	Acres	HUs	HSI	Acres	HUs	HSI	Acres	HUs	
Elk	.222	866	193	.30	364	109	.87	364	317	+15
Beaver	.526	38	20	.5	135	68	.65	173	114	+26
Yellow Warbler	.35	41	14	.35	154	54	.58	161	93	+25
GWH	.225	825	186	.225	200	45	1.0	210	210	-23

[1] HSI = Habitat Suitability Index (varies from 0 to 1.0). HU = Habitat Units, where HUs = HSI x acreage.

[2] Net change in HUs equals the HUs at the mitigation site following mitigation implementation minus existing HUs at the reservoir and mitigation site. Assumes mitigation objectives are attained within 5 years of mitigation plan implementation and will be maintained for the life of the project.

Table 5.3.4.2. The specific effects of improving habitat parameters on SIs[1], HSIs and HUs for HEP evaluation species on the proposed Muddy Creek mitigation sites.

HEP EVALUATION SPECIES: BEAVER

Variable	Variable Description	Existing Value	SI	Post-Mgmt. Value	SI	Acres Involved
1	% tree canopy closure 0-100 m from water	24%	.20	35%	.25	173
2	% tree 2.5-15.2 cm DBH, 0-100 m from water	25%	.40	30%	.44	173
4	% canopy cover of shrubs 0-100 m from water	24%	.60	40%	1.0	173
5	Mean height of shrubs 0-100 m from water	183 cm	.93	200 cm	1.0	173
6	% tree canopy closure 100-200 m from water	0	0	5%	.12	173
7	% trees 2.5-15.2 cm DBH, 100-200 m from water	0	0	50%	.61	173
9	% canopy cover of shrubs 100-200 m from water	0	0	40%	.10	173
10	Mean heights of shrub canopy 100-200 m from water	0	0	150 cm	.76	173

Muddy Creek Reservoir Site			Muddy Creek Mitigation Sites						Overall Net Gain
			Existing			Post Management			
HSI	Acres	HUs	HSI	Acres	HUs	HSI	Acres	HUs	In HUs
.526	38	20	.50	135	68	.65	173	114	+26

Table 5.3.4.2 Continued

HEP EVALUATION SPECIES: ELK

Veg. Type Variable	Variable Description	Existing Value	SI	Post-Mgmt. Value	SI	Acres involved
Willow Riparian						
1	% herb cover	30%	.8	90%	1.0	
2	% herb cover that is graminoid	53%	1.0	53%	1.0	
3	% shrub cover <2 m in height	7%	.2	30%	1.0	
Wet Sub-Irrigated Meadow						
1	% herb cover	30%	.8	90%	1.0	
2	% herb cover that is graminoid	88%	1.0	88%	1.0	
3	% shrub cover <2 m in height	2%	.05	15%	.5	

Muddy Creek Reservoir Site			Existing Creek Mitigation Sites						Overall Net Gain
			Existing			Post Management			
HSI	Acres	HUs	HSI	Acres	HUs	HSI	Acres	HUs	in HUs
.222	866	193	.30	364	109	.87	364	317	+15

Table 5.3.4.2. Continued

HEP EVALUATION SPECIES: YELLOW WARBLER

Variable	Variable Description	Existing Value	SI	Post-Mgmt. Value	SI	Acres Involved
1	deciduous shrub crown cover	24.4%	.41	40%	.66	161
2	average height shrubs	181.3 cm	.92	200 cm	1.0	161
3	% deciduous shrub cover hydrophytic shrubs	30%	.32	45%	.51	161

Muddy Creek Reservoir Site			Existing Creek Mitigation Sites						Overall Net Gain
			Existing			Post Management			
HSI	Acres	HUs	HSI	Acres	HUs	HSI	Acres	HUs	In HUs
.35	41	14	.35	154	54	.58	161	93	+25

Table 5.3.4.2 Continued

HEP EVALUATION SPECIES: GWH

Variable	Variable Description	Existing Value	SI	Post-Mgmt. Value	SI	Acres Involved
1	percent herbaceous cover	45.0%	.33	90	1.0	210
2	percent herbceous cover that is graminoid	88.0%	1.0	88.0%	1.0	210
3	herbaceous height	13cm	.22	60cm	1.0	210

Muddy Creek Reservoir Site			Existing Creek Mitigation Sites						Overall Net Gain
			Existing			Post Management			
HSI	Acres	HUs	HSI	Acres	HUs	HSI	Acres	HUs	In HUs
.225	825	186	.225	210	47	1.0	210	210	-23

Federal Interagency Committee for Wetland Delineation, 1988, Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, U. S. Fish and Wildlife Service, and U. S. D. A. Soil Conservation Service, Washington, D.C. Cooperative Technical Publication. 76 pp., plus appendices.

Grah, O. J., 1989, Wetlands Inventory of the Muddy Creek Reservoir Site and Mitigation Area Near Kremmling, Colorado. Bio/West, Inc., Logan, Utah, for Department of Army, Corps of Engineers, Grand Junction, Colorado.

Petts, G. E., 1984, Impounded Rivers, Perspectives for Ecological Management. Wiley Interscience Publication, John Wiley and Sons, New York, New York.

Resource Consultants, Inc., 1989, Supplementary Hydrology Technical Report for Muddy Creek Reservoir. For BLM, Kremmling Resource Area, and Colorado River Water Conservation District, Glenwood Springs, Colorado.

Rosgen, D. L., 1985, A Stream Classification System. Paper presented at the North American Riparian Conference, Tucson, Arizona, April 16-18, 1985.

Schrieber, J. D., and D. L. Rausch, 1979, Suspended Sediment - Phosphorus Relationships for the Inflow and Outflow of a Flood Detention Reservoir. Journal of Environmental Quality: 8(4).

U. S. Department of Agriculture, Forest Service, 1987, Rock Creek/Muddy Creek Reservoir, Draft Environmental Impact Statement, Rocky Mountain Region, Lakewood, Colorado, August.

U. S. Department of Agriculture, Forest Service/U. S. Department of Interior, Bureau of Land Management, 1988, Rock Creek/Muddy Creek Reservoir, Supplemental Draft Environmental Impact Statement, Rocky Mountain Region and Colorado State Office, Lakewood, Colorado, August.

2.8 Appendix C

Page C-1, first paragraph, add after last sentence, "This appendix contains a sample of a U. S. Forest Service Plan applicable to Rock Creek. A similar plan would be applicable to the Muddy Creek site and will be required prior to permitting the project.

Page C-3, first paragraph, add after last sentence, "Recommended Best Management Practices (BMP) as developed and approved by the State of Colorado for the Non-point Source Task Force for erosion and road construction will be used where applicable."

Page C-16, add the following section before Section V:

C. Water Quality Monitoring. A water quality monitoring program will be stipulated in the land use agreement. Permanent recording stream gages will be installed to monitor reservoir inflow and outflow. The proponent will fund the construction, operation, and maintenance of the gages and has contracted with the U. S. Geological Survey to monitor water quality in the reservoir so that if problems are identified, corrective action in the operation plan can be evaluated. The monitoring will be conducted at three sites (near inflow, mid-reservoir, and near dam) on the surface of the reservoir and at two sites (mid-reservoir and near dam) on the bottom of the reservoir. Sampling will be conducted three times each year (May, July, and September) and will include nutrients, major ions, selenium, chlorophyll a, phytoplankton, and trace metals. Lake profiles of temperature, specific conductance pH, dissolved oxygen, and secchi disc readings will be done at all sites each visit.

2.9 Substitution Agreement

To implement the proposed action, the Secretary of the Interior (through the Bureau of Reclamation) would be required to execute an agreement which would provide for water substitution between the proposed Muddy Creek Reservoir and Green Mountain Reservoir. See discussion in Sections 1.1 (Introduction) and 2.5 (Environmental Consequences - Surface Water Resources) in this FEIS for details.

During recent negotiations on the Substitution Agreement between the Bureau of Reclamation, the Denver Water Board, the Northern Colorado Water Conservancy District, and the Colorado River Water Conservation District, Denver has requested allowing the use of Muddy Creek Reservoir to fulfill the historic functions of Williams Fork Reservoir if, for some unforeseen reason, Williams Fork Reservoir is not available for Denver's use as a result of an outage. An example of an outage situation might be draining the active storage capacity of a reservoir to make structural repairs on the outlet works of a dam.

It is not possible to predict the details of an outage at Williams Fork Reservoir. However, all exchanges or substitutions on the Blue River involving Green Mountain Reservoir (including the proposed Substitution Agreement) must be approved by the Secretary of the Interior (normally delegated to the Bureau of Reclamation). If an outage were to occur at Denver's Williams Fork Reservoir, the Secretary of the Interior would have the opportunity to review and approve any proposed exchange or substitution related to an outage on a case by case basis. Similarly, Muddy Creek could serve as an emergency source of water for the West Slope in the event the Bureau's Green Mountain Reservoir were to experience an outage. Again, the Secretary of the Interior would have the opportunity to review and approve the specific conditions of any substitution or exchange proposed.

3.0 SUMMARY OF FINAL MITIGATION PLAN FOR MUDDY CREEK

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3.0 SUMMARY OF FINAL MITIGATION PLAN FOR MUDDY CREEK

3.1 Introduction

Impacts that would occur to wetlands, wildlife, and a rare plant due to the proposed Muddy Creek reservoir were discussed in both the Draft EIS (USDA-FS 1987) and Supplemental Draft EIS (USDA/USDI 1988) for the proposed project. Wetland impacts included 892 acres of bottomland exhibiting wetland characteristics, most in relatively poor condition due to intensive agricultural practices including irrigation. A wetlands jurisdictional study was completed in 1989 and showed that only about 300 acres of the 892 acres of bottomland were jurisdictional wetlands as defined by the U. S. Army Corps of Engineers. Wildlife impacts centered on loss of winter habitat and associated forage. Rare plant impacts include both direct loss due to construction of the reservoir and indirect impacts due to recreational use of areas surrounding the reservoir. Mitigation for these impacts was discussed in both the Draft EIS and Supplemental Draft DEIS, but in fairly general terms. Following selection of the Muddy Creek alternative as the Preferred Alternative, a detailed mitigation plan was prepared for the Muddy Creek site. This chapter summarizes that plan, which is available for review at the BLM Area Office in Kremmling, Colorado. Impacts and mitigation are discussed for wetlands, big game, and Osterhout's milkvetch, a rare plant. Table 3.1 summarizes the impacts, mitigating measures proposed to offset those impacts, and the expected results of mitigation. The overall goal of mitigation is replacement of all impacted values in a location as close to the area of impact as possible. Where any differences exist between the Final Mitigation Plan and Chapter 5.0 SDEIS, the information in the Final Mitigation Plan (as summarized in this chapter) takes precedence.

3.2 Wetlands

A team comprised of federal, state, and independent biologists was formed in 1985 to guide the impact analysis and mitigation process. A total of 892 acres of bottomland exhibiting wetland characteristics would be impacted by the proposed reservoir project, including 682 acres of wetland habitat in poor condition due to overgrazing and other agricultural activities, and 210 acres of wetland habitat in good condition. Table 3.2 summarizes the wetland habitat types found in the Muddy Creek area, and how these wetlands would be impacted. All the functional values of the impacted wetland habitat except wildlife habitat would be replaced by the reservoir. Therefore, wildlife values are the only functional values that require mitigation. (See discussion Chapter 2.0, Section 4.4.6.2).

A jurisdictional wetlands inventory (Grah, 1989) was conducted on the reservoir area and mitigation area in 1989 which verified the acreage of wetland habitat in the Muddy Creek bottomlands and concluded that about 300 acres of the reservoir bottomlands were jurisdictional wetlands.

Table 3.1
Summary of Impacts, Mitigation/Conservation Measures and Expected Results for Wetland, Big Game, and Rare Plants Associated with the Proposed Muddy Creek Reservoir*

Impact	Mitigation/Conservation Measure	Expected Result
	Wetland Habitat	
892 acres impacted including 682 acres of wetland habitat in poor condition, and 210 acres of wetland habitat in good condition.	Enhance, restore, and create wetlands on 460 acres by removing grazing, developing an irrigation system, and planting 37 acres willow and 7 acres cottonwood. Establish a monitoring program to ensure success.	Produce a net increase in wetland wildlife values by replacing more values in the mitigation area than would be lost in the reservoir area.
	Establish a monitoring, maintenance, and remediation program to ensure mitigation success.	
Loss of 8 acres pond and 3 acres cottonwood habitat.	Create 8 acres of permanent pond habitat and plant 7 acres cottonwood.	Replace cottonwood and pond habitat acre-for-acre.
	Big Game	
1,523 acres winter range lost.	Fertilization/vegetation treatment on 800 acres near Wolford Mtn. and 175 acres along lower Muddy Creek.	Lost forage would be replaced.
Big game/motorist collisions increased.	Place warning signs along Highway 40.	Big game/motorist collisions reduced to present levels or lower.
Depredation of privately owned hay increased.	Use hay to attract big game away from private land and fence privately owned hay.	Depredation of privately owned hay reduced to present levels or lower.
	Osterhout's Milkvetch	
Loss of 18 acres of habitat due to inundation.	Conduct a 5-year conservation study of the plant and its habitat.	Strengthen the ability to protect plant in the future.
Indirect loss of plants and habitat due to recreational use along reservoir.	Protect two offsite populations through purchase or exchange.	Provide assurance that plant would not be disturbed in these areas in the future.
Potential loss of habitat by dam access road.	Survey route prior to construction.	Assure that additional direct impact would not occur.

* In addition to the three major areas of mitigation, additional enhancement and conservation measures were included in the mitigation plan. These include endangered fish conservation, stocking the reservoir with game fish, monitoring reservoir water quality, and enhancing fish habitat in the tailwater area.

Costs for the entire mitigation, enhancement, and conservation package are projected at over $2 million in 1989 dollars (Table 3.3).

Table 3.2
Summary of Acreages of Wetland Types Impacted
by Inundation and Construction of Reservoir Facilities

Community Type	--- Project Component --- Inundation	Facilities	Total Acres
Wet meadow	822	3	825
Willow riparian	38	0	38
Cottonwood/willow riparian	3	0	3
Fast moving stream	16	0.5	16.5
Slow moving stream	1	0	1
Standing water with floating rooted plants	7	0	7
Standing water with cattails	1	0	1
TOTAL WETLANDS	888	3.5	891.5

Table 3.3*
Summary of All Costs (1989 Dollars) Associated
with the Mitigation Plan, Fisheries Enhancement Program and
Rare Fish Conservation Measures

Cost Category	Initial Cost	Actual Long Term Cost	Sinking Fund Cost**
Wetland wildlife habitat (including land)	$ 806,150	$ 285,000	$ 136,000
Impacts to big game	139,000	336,000	127,000
Impacts to Osterhout's milkvetch	57,500	10,000	4,400
Subtotal for mitigation plan	**$ 1,002,650**	**$ 631,000**	**$ 267,400**
Cost to prepare mitigation plan	50,000	0	0
Stocking reservoir with fish ($10,000/YR)	0	500,000	221,000
USGS water quality monitoring	45,000	392,000	261,000
Rare fish recovery program (Depletion of 7,716 ac-ft @ $10.41/ac-ft)	80,324	0	0
GRAND TOTAL	**$ 1,177,974**	**$ 1,523,000**	**$ 749,400**

* Assumes a 50-year project life.

** This amount deposited in 1989 and returning 8% annually, with an annual 4% inflation rate, would provide the actual long term cost to conduct the mitigation at the time it would be required in the future.

Impacts to wetland wildlife values were evaluated using the Habitat Evaluation Procedure (HEP), a method of quantifying wildlife habitat values using representative HEP species models. Models selected by the team for use in evaluating Muddy Creek wetlands were beaver, yellow warbler, and a modified elk model. An additional model, the general wetlands habitat model, was developed and used to quantify other wetland wildlife values. The same models were used to evaluate present conditions on the mitigation area selected by the team, the bottomland along Muddy creek below the proposed dam (Figure 3.1). Management actions required to improve the wildlife values of the mitigation site include removal of livestock grazing, development of an irrigation system, planting wetland shrubs and trees, and developing permanent pond habitat (Table 3.1). Pond and cottonwood habitats were not adequately covered by the HEP analysis; therefore, their wildlife values were mitigated by acre-for-acre replacement. Mitigation would require about 410 acres of the lower Muddy Creek site plus an additional 40 to 50 acres at another site in close proximity to the reservoir and mitigation area.

3.3 Wildlife

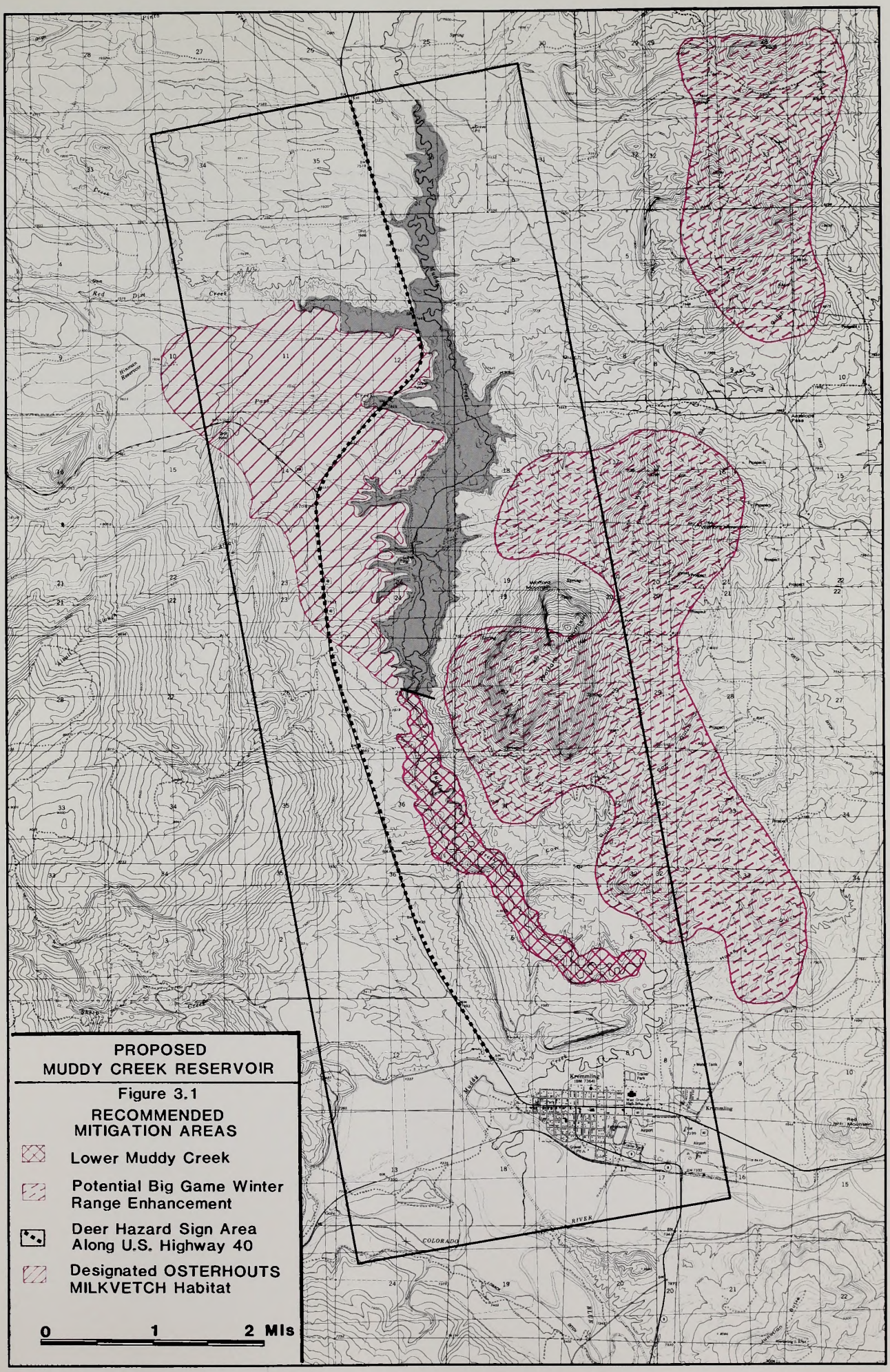
Big game impacts involved loss of 1,523 acres of winter range for deer and elk, potential increased future depredation on agricultural areas, and increased potential for big game/motorist collisions on Highway 40. Mitigation included fertilization and/or vegetation manipulation on 800 acres near Wolford Mountain and on 125 to 175 acres near the wetlands mitigation site (Figure 3.1). Hay would be provided to attract big game away from agricultural areas and signs would be placed along Highway 40 to reduce collision hazards (Table 3.1).

3.4 Rare Plant

Impacts to Osterhout's milkvetch included direct loss of 18 acres of habitat by inundation, disturbance of habitat by power line reconstruction, and indirect impacts due to recreational use of the plant's habitat along the proposed reservoir. Conservation measures include securing two offsite populations by purchase or exchange, management of the Muddy Creek project area containing the plant as part of the recreation plan, inspection of construction access areas, and a 5-year study to determine the success of vegetative manipulation and transplantation of seeds or adult specimens into new habitat.

3.5 Endangered Fish

The USFWS Biological Opinion concluded that the Muddy Creek project will cause discrete identifiable additive impacts to Colorado River endangered fishes (see Chapter 4.0). Conservation measures will include a one-time contribution to the Recovery Program in the amount of $10.41 per acre-foot of the project's average annual depletion ($80,324), and demonstration of sufficient progress toward appropriate legal protection of instream flows. The latter requirement is met, primarily, by providing water releases from Muddy Creek Reservoir under conditions specified in a


PROPOSED
MUDDY CREEK RESERVOIR
Figure 3.1
RECOMMENDED
MITIGATION AREAS
Lower Muddy Creek
Potential Big Game Winter
Range Enhancement
Deer Hazard Sign Area
Along U.S. Highway 40
Designated OSTERHOUTS
MILKVETCH Habitat
0
1
2 Mls

Memorandum of Understanding (MOU) between the USFWS and the River District (see Chapter 4.0 for a more detailed summary of these conditions).

3.6 Reservoir Water Quality Monitoring. The River District has contracted with the U. S. Geological Survey to monitor water quality in the reservoir so that if problems are identified, corrective action in the operation plan can be evaluated. The monitoring will be conducted at three sites (near inflow, mid-reservoir, and near dam) on the surface of the reservoir and at two sites (mid-reservoir and near dam) on the bottom of the reservoir. Sampling will be conducted three times each year (May, July, and September) and will include nutrients, major ions, selenium, chlorophyll a, phytoplankton, and trace metals. Lake profiles of temperature, specific conductance, pH, dissolved oxygen, and secchi disc readings will be done at all sites each visit.

4.0 SUMMARY OF BIOLOGICAL OPINION FOR MUDDY CREEK

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4.0 SUMMARY OF BIOLOGICAL OPINION FOR MUDDY CREEK

4.1 Introduction

As required by Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq) a Biological Assessment was submitted to the U. S. Fish and Wildlife Service (USFWS) by the Bureau of Land Management (BLM) on January 24, 1989. Draft Biological Opinions on Muddy Creek Reservoir were issued by the U. S. Fish and Wildlife Service on October 16, 1989 for fish and wildlife species and an endangered plant. This chapter summarizes the key elements of the Biological Opinions and related conservation measures agreed to by the Bureau of Reclamation. Copies of the Biological Opinions are available from the BLM on request.

The USFWS is in agreement with the Biological Assessment submitted by the BLM with regard to the following points:

The USFWS concurs that the Muddy Creek project "may affect" the bald eagle (Haliaeetus leucocephalus) and further indicates that this determination is based on a likely beneficial effect. The proposed reservoir would likely provide additional food sources, and an ice free tailwater for winter food gathering. The proposed action is not likely to adversely affect this listed species, and therefore, no further consultation is required for the bald eagle.

The USFWS agrees with the determination of "no effect" for the whooping crane (Grus canadensis tabida). Two whooping crane populations remain in the western U. S. The wild population is never found west of Texas, Oklahoma, Kansas, Nebraska, and the Dakotas, and the other population which was cross-fostered with sandhill cranes does not use any area within the proposed project with any consistency.

The USFWS concurs with the "may affect" determination for Colorado Squawfish (Ptychocheilus lucius), Humpback chub (Gila cypha), and Bonytail chub (Gila elegans) as described in the Biological Assessment. The following sections summarize potential impacts and required conservation measures for these three species.

The USFWS concurs that the Muddy Creek project "may affect" the plant Astragalus osterhoutii, directly and indirectly.

4.2 Threatened and Endangered Fish

Water depletions in the Upper Colorado River Basin have been recognized as a major source of impact to endangered fish species. Continued water withdrawal has restricted the ability of the Colorado River system to produce flow conditions required by various life stages of the fish. Impoundments and diversions have reduced peak discharges by 50 percent since 1942 while increasing base flows by 21 percent in some reaches. These depletions, along with a number of other factors, have

resulted in such drastic reductions in the populations of Colorado squawfish, humpback chub, and bonytail chub that the USFWS has listed these species as endangered and has implemented programs to prevent them from becoming extinct. Detailed life history requirements of the Colorado River threatened or endangered fish, including the razorback sucker, are presented in the Biological Assessment.

4.2.1 Colorado Squawfish (Ptychocheilus lucius). A marked decline in Colorado squawfish populations can be closely correlated with the construction of dams and reservoirs during the 1960's, the introduction of non-native fishes, and the removal of water from the Colorado River system. The reach of currently known occupied habitat that will receive the most impact due to the upstream water withdrawals related to the proposed Muddy Creek project is the mainstem Colorado River between Palisade, Colorado and its confluence with the Gunnison River (the 15-mile reach). Depletions resulting from the Muddy Creek project will result in some alteration of physical habitat in occupied areas of the Colorado River below the confluence of the Gunnison River. The specific impacts are unquantified, but the opinion of the USFWS is that the flows contributed by the Gunnison River and other tributaries will prevent habitat and flow conditions as critical as those found in the 15-mile reach.

The 15-mile reach is used by Colorado squawfish throughout the year for a variety of purposes (spawning, wintering, general adult use, etc.). The USFWS believes that these data point to the need to prevent further degradation of adult Colorado squawfish habitat in the 15-mile reach.

4.2.2 Humpback chub (Gila cypha). Humpback chub exist in two major populations in the upper Colorado River, at the Black Rocks area of Ruby Canyon, and in Westwater Canyon. Because these reaches are deep and narrow, the USFWS believes the Muddy Creek project is not likely to jeopardize the continued existence of this species if the Conservation Measures outline in the Biological Opinion are met.

4.2.3 Bonytail chub (Gila elegans). Little is known about the biological requirements of the bonytail chub as few have been observed since 1960. One individual with bonytail-like characteristics was collected at Black Rocks in 1985 and several suspected bonytail chub have been observed in Cataract Canyon. These fish may indicate a small extant population. Effects of the Muddy Creek project are not likely to further jeopardize the continued existence of the bonytail chub if the Conservation Measures outlined in the Biological Opinion are met.

4.2.4 Razorback sucker (Xyrauchen texanus). The razorback sucker is currently a candidate for listing as a federally endangered species. The USFWS has omitted reference to this species in their Biological Opinion, but states that if any new species become listed as federally endangered, Section 7 consultation would be reopened.

4.3 Project Impacts (Fish)

The Muddy Creek project will cause discrete identifiable additive impacts to the Colorado River endangered fishes. The Muddy Creek project will cause additional flow depletions to existing and planned water projects and additional changes to historic flow regimes produced as a result of other water projects. These projects reduce peak runoff flows in April, May, and June, and release additional flows during other times of the year.

The fact that the Muddy Creek project would deplete flows during peak runoff periods is of concern to the USFWS because this period is of great significance geomorphically and ecologically. Peak spring flows are very important for maintaining channel geomorphology, providing access to off-channel habitats, and preserving suitable spawning substrates. McAda and Kaeding (1989) suggest a maximum annual streamflow of 30,000-40,000 cfs at the Colorado-Utah border could result in increased reproductive success. The Muddy Creek project could reduce the possibility of achieving this goal.

The USFWS finds that: Changes in peak flows due to the Muddy Creek project are not expected to appreciably affect the capability of peak flows to flush fine sediment from cobble substrate in the 15-mile reach; the project will not significantly affect the current channel morphology due to the armored nature of the channel; and, that in most years, the project would cause small flow accretions in the 15-mile reach during late summer months, but would deplete late summer flows during two out of twenty-one years.

4.4 Biological Opinion (Fish)

Based upon the best scientific and commercial information that is currently available, it is the USFWS Biological Opinion that the Muddy Creek project is not likely to jeopardize the continued existence of the Colorado squawfish, bonytail chub, and humpback chub provided that the Conservation Measures described are implemented. In a letter dated October 30, 1989, the River District agreed to implement the Conservation Measures the USFWS believes are necessary to offset the likelihood of jeopardy.

4.5 Conservation Measures (Fish)

The USFWS has determined that project depletion impacts, which the USFWS has consistently maintained are likely to jeopardize the listed fishes, can be offset by (a) program activities partially funded by the water project proponents' one-time contribution to the Recovery Program in the amount of $10.41 per acre-foot of the project's average annual depletion, and (b) appropriate legal protection of instream flows pursuant to state law. The USFWS believes it is essential that protection of instream flows proceed expeditiously before significant water depletions occur.

The proposed action would cause a depletion of approximately 7,716

acre-feet per year during project operation. With respect to item (a), above, the applicant will make a one-time payment of $10.41 per acre-foot of average annual depletion, or a total payment of $80,324.

With respect to item (b), above, the USFWS evaluated progress under the Recovery Program. This evaluation considered (a) progress in all areas of instream flow protection (including the good faith effort by participants in the Recovery Program), (b) progress in other recovery elements, and (c) the magnitude of impacts of the Muddy Creek project on the endangered fishes. The USFWS gave consideration to progress in the drainage where project impacts occur as well as progress in other parts of the basin.

The USFWS Biological Opinion lists progress to date under the Recovery Program that the USFWS evaluated in making the sufficient progress determination for the Muddy Creek project. The following are specific elements of progress that may lead to protection of instream flows in the Colorado River, and thus, contribute to offsetting impacts from the Muddy Creek project.

1. Finalization of the USFWS flow recommendation for the 15-mile reach for the months of July, August, and September (complete).

2. Implementation Committee concurrence with the USFWS work plan for quantifying flow recommendations in the 15-mile reach for October-June (complete).

3. Execution of an agreement by the Bureau of Reclamation and Grand Valley water users to assure delivery of Ruedi Reservoir releases to the head of the 15-mile reach (complete).

4. Execution of an agreement among the Colorado Water Conservation Board, the USFWS, and the Bureau of Reclamation to protect Ruedi Reservoir releases through the 15-mile reach (in progress).

5. Implementation of a study by the Bureau of Reclamation to evaluate alternatives for supplying instream flows in the 15-mile reach (complete).

6. Agreement by the Colorado Water Conservation Board to aggressively pursue an instream flow right for the 15-mile reach for the months of July, August, and September for the amount recommended by the Implementation Committee (in progress).

Based on its evaluation, the USFWS has determined that progress under the Recovery Program has not been sufficient to offset the depletion impacts of the Muddy Creek project. To date, no water rights have been acquired under the Recovery Program and there is significant uncertainty that progress will in fact lead to protection of instream flows in a timely manner. Furthermore, progress in other recovery elements has yet to result in substantive protection of habitat or enhancement of the populations of the listed species.

Thus, a conservation measure in addition to the depletion charge will be required in order to avoid jeopardizing the continued existence of the listed species. The additional conservation measure is embodied in a Memorandum of Understanding (MOU) (Appendix C to the Biological Opinion) whereby the Colorado River Water Conservation District has agreed with the USFWS to release 3,000 acre-feet of water from Muddy Creek Reservoir approximately three out of five years (as a long-term average) for delivery to the 15-mile reach during the period from July 15 to October 15. The Service has analyzed the potential benefits of the releases and has determined that they will contribute to achieving the USFWS 700-1,200 cfs flow recommendation for the 15-mile reach and thus, contribute to offsetting the impacts of the Muddy Creek Project.

The 3,000 acre-feet of water from Muddy Creek is being provided by the River District until such time as the Recovery Program acquires and legally protects an equivalent amount of water in the 15-mile reach. However, the USFWS, if requested by the River District, will evaluate whether progress under the Recovery Program that results in significant protection of instream flows in other parts of the Upper Colorado River Basin is sufficient to relieve the River District of its commitment under the MOU.

The MOU between the USFWS and the Colorado River Water Conservation District represents a commitment to a process to provide flows for rare Colorado River fishes in the reach of the mainstem Colorado River from the Grand Valley Irrigation Company Diversion Dam to the confluence with the Gunnison River (15-mile reach). These flows are to be provided on an interim basis until the USFWS determines that sufficient instream flows have been acquired through the Recovery Program to offset the impacts of the Muddy Creek project. The MOU includes the following special terms and conditions:

1. The River District will determine, on an annual basis, the amount of water actually available for operational releases to provide flows to the 15-mile reach for the rare Colorado fishes. The criteria to determine availability of water for this purpose include:

    a. Each year after completion of the May 1 snowmelt runoff forecast, an evaluation will be made to estimate the releases required for contractual requirements as described in the Muddy Creek Final Environmental Impact Statement (FEIS), wetlands mitigation requirements, and reservoir evaporation and other losses. If that amount of release and loss will provide an October 15 target storage of 50,000 acre-feet or more, the River District will notify the USFWS of the estimated amount of water available to provide for release to the 15-mile reach. Using this estimate, the USFWS will notify the River District, by June 15, of the pattern of delivery of the available water to the 15-mile reach.

    b. The requested flow release to the 15-mile reach will be made up to a total calendar year release of 3,000 acre-feet during the period from July 15 to October 15, as requested by the USFWS. Such flow release shall not exceed 100 cfs. Releases will be measured at the outlet works of Muddy Creek.

c. During the period of the MOU, the availability of water for any other non-contractual uses, as identified in the Muddy Creek Final EIS (such as releases for the fishery in Muddy Creek or recreation flows in the Colorado River), will be subordinate to the availability of water for the uses identified in 1.a and 1.b above.

2. In determining the amount of water available for flow release to the 15-mile reach, the River District simulated the hydrologic conditions of the 1953-1982 period. If similar runoff conditions were repeated, the 3,000 acre-foot release would be available in 3 out of 5 years as a long-term average. It is understood that there may be shorter periods when this long term average release will not be achieved.

3. The MOU is intended to provide an interim source of water and is credited to Muddy Creek Reservoir until such time as the Recovery Program acquires a more permanent source of water.

4. If the MOU is still in effect after 15 years from the date of execution (because replacement water has not been acquired), consultation will be reinitiated to evaluate the continuing need for no more than the amount of water as provided for in the MOU or other options that may be available for offsetting project depletions.

The USFWS believes that the provision of flows in the 15-mile reach is important to the continued survival and recovery of the rare Colorado River fishes. The instream flows provided under the MOU (which could increase the flow by 50 cfs for a 30-day period), will contribute incrementally to the USFWS's goal of protecting flows in the 15-mile reach for the maintenance of habitat for the rare Colorado River fishes, and will offset the depletion impacts of the Muddy Creek project.

4.6 Endangered Plant

Astragalus osterhoutii is a herbaceous perennial wildflower endemic to Middle Park, a sagebrush basin in north-central Colorado. It is restricted to badlands of Upper Cretaceous Niobrara and Pierre Shale and of Tertiary (Miocene Troublesome Formation) siltstone sediments at 2,250-2,350 meters (7,450-7,700 feet) elevation within 6 miles to the north and east of the town of Kremmling. Astragalus osterhoutii was described in 1923 by Marcus E. Jones (1923) from material collected in 1905 and 1906 by George Osterhout, an early Colorado botanist.

There are an estimated 25,000 to 50,000 of Osterhout's milkvetch plants, approximately 90 percent of the total for the species, in the vicinity of Muddy Creek. The remaining 10 percent of the species occurs on the eastern and western extremities of the range at Troublesome and Red Dirt Creek (a tributary of Muddy Creek), respectively.

4.7 Project Impacts (Plant)

Astragalus osterhoutii is a naturally rare species. It has only one major population along Muddy Creek, with small scattered outlying colonies up to a distance of 6 miles away. The major population of Astragalus osterhoutii along Muddy Creek has an estimated 25,000 to 50,000 plants, which represent about 90 percent of the total for the species, on 132 acres and is threatened by the proposed Muddy Creek Reservoir. With construction of the high dam proposal at 7,485 feet elevation, 18 acres or 12 percent of the Muddy Creek population would be inundated. Also, during flood stages there would be a short-term rise of 8 to 14 feet in the reservoir level which would inundate an undetermined number of additional plants. Additional direct losses from reservoir construction could result from the raised water table through perennial soil saturation, and from surface disturbance due to construction activities such as road building, creation of borrow pits, and heavy equipment movement (Grah and Neese 1987).

While direct inundation and bench sloughing would destroy habitat at the lower edges of the population, significant secondary impacts to the benches around the reservoir and along Alkali Slough and Pass Creek could occur with the building of recreation facilities, a State park and campground, and increased use of the area by people and off-road vehicles. The presence of the reservoir would likely stimulate development on private land within the plant's range near the reservoir. These potential secondary impacts would be the same for either dam height and could cause destruction, modification, or curtailment of Osterhout's milkvetch habitat or range. Depending upon the degree of future recreational usage, secondary impacts from the Muddy Creek Reservoir may be even greater to Osterhout's milkvetch than direct impacts from reservoir construction (Grah and Neese 1987). In addition to the direct impacts mentioned above, 80 acres, or 55 percent of the habitat of Astragalus osterhoutii, could be threatened by secondary impacts from recreational activities associated with the Muddy Creek Reservoir proposal (Bio/West 1988).

4.8 Biological Opinion (Plant)

Based upon the best scientific and commercial information that is currently available, the Muddy Creek Reservoir Project, is not likely to jeopardize the continued existence of Osterhout's milkvetch. The conclusion of this Biological Opinion that the project will not likely jeopardize this species is based upon the implementation of Conservation Measures described in this document. In a letter dated October 30, 1989, the River District agreed to implement the Conservation Measures the USFWS believes are necessary to offset the likelihood of jeopardy.

4.9 Conservation Measures (Plant)

Due to both the direct and indirect impacts described above that would result to Osterhout's milkvetch from construction of the high dam (7,485 feet) Muddy Creek Reservoir, the USFWS has determined that full implementation of the following conservation measures is necessary in order

to insure that the proposed Muddy Creek Reservoir Project is not likely to jeopardize the continued existence of Osterhout's milkvetch.

1. To offset the potential indirect impacts that could occur to the plant, off-site compensation will be required. The District will contribute 50 percent of the funds needed to secure a parcel of land in the Troublesome Creek drainage which contains the species. This parcel is 52.5 acres and is located at the east 1/2, southeast 1/4, T2N, R79W, S30, except that portion lying west of Grand County Road 2. This parcel of land will be secured through the cooperative efforts of the District, the BLM, and the Nature Conservancy.

   In addition, the District will purchase a parcel of land containing the plant west of the reservoir of at least 20 acres subject to the approval of the BLM in consultation with the USFWS. The District will donate the land to the BLM. Management will be designed and implemented in cooperation with the BLM, USFWS, and Colorado Natural Areas Program to favor the plants in terms of protection and perpetuation of the species.

2. The District will manage the Muddy Creek project area containing the plant as part of the recreation plan. Management will include providing developed recreation sites away from areas containing the plant, as well as precluding any activity that will impact the plant's habitat such as vehicular access. As such, the District will erect fences along all access roads to the reservoir from U. S. Highway 40 to preclude habitat alteration. The existing condition of the fence along U. S. Highway 40 is sufficient to preclude access to the subject areas. Minor repair and maintenance of both existing and new fences may be required at a later point during the life of the project. This action will require approximately 3.0 miles of new fence.

3. The District will have a qualified rare plant biologist inspect the flagged access road and other construction activities in the areas where the plant has been located in the past, and reroute these features if plants are found and if determined feasible by the BLM.

4. A mini-study is to be implemented by the District to determine the success of vegetative manipulation and transplantation of seeds or adult specimens into new habitat. This study will entail clearing, with a crawler tractor, two or more plots 0.25 to 0.5 acres in size of sagebrush scrub adjacent to existing populations but not containing plants. In one of these plots, adult plants from the inundation zone, as well as seed from the plant would be planted in the disturbed site to determine the feasibility of establishing plants in areas not already occupied. The other cleared plot would be left as a control to compare to the planted plot, as well as to determine whether the plant will pioneer the disturbed site. One of the objectives of the mini-study is to determine if the plant is a pioneer or an early seral species thereby depending on or preferring disturbed sites. Further, it has been hypothesized that heavy grazing pressure in the sagebrush complex around the reservoir site may have allowed sagebrush to increase in dominance, thus affecting

this sensitive species, as it has been observed to prefer open areas within the sagebrush complex but rarely occurs in dense sagebrush stands. Such a mini-study would likely provide data and specific observations that may help to prove or nullify this hypothesis. The cleared plots will be fenced as discussed above and monitored annually for a period of five years with appropriate quantitative measurements taken to determine success.

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5.0 ENVIRONMENTAL COMMITMENTS

In conjunction with the filing of this environmental impact statement, the Bureau of Land Management (BLM), U. S. Forest Service (USFS), and Bureau of Reclamation (USBR) make the following environmental commitments. The agency responsible for each commitment is noted and a reference to the section of the Supplemental Draft EIS or Final EIS where additional discussion of the commitment can be found is provided.

Bureau of Land Management

1. Commitments agreed to in the Final Mitigation Plan for Muddy Creek Reservoir in Chapter 3.0 of this document, including wetlands, big game, the rare plant, and water quality.

2. Commitments agreed to in relation to the U. S. Fish and Wildlife Service Biological Opinions in Chapter 4.0 of this document.

3. Responsibility for ensuring that the following mitigation measures not specifically covered in the Final Mitigation Plan (Item 1, above) are required and followed as a condition of the Right-of-Way for the Muddy Creek site.

   Soils - Site specific runoff, erosion, revegetation, and sediment control measures will be developed in a construction and operations plan and will be followed during construction. (Section 4.4.2.2 and Appendix C, SDEIS).

   Air Quality - Mufflers, filters and appropriate dust control techniques will be implemented during construction (Section 4.4.5.2, SDEIS).

   Visual Resources - Material site(s) and road cut(s) will be graded, sloped, contoured, and revegetated following construction (Section 4.4.11.2, SDEIS). A plan for these activities will be developed in conjunction with the construction and operations plan.

   Cultural Resources - Intensive cultural resources inventories will be completed for both the reservoir and adjacent areas prior to construction. Appropriate consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation regarding eligibility of properties for the National Register of Historic Places and potential impacts will be undertaken. (Section 4.4.13.2, SDEIS).

   Transportation - Accepted traffic control measures will be instituted during construction (Section 4.4.17.2, SDEIS). Roadway modifications will comply with all Federal and State highway standards and specifications.

Aquatic Resources - Monitor selenium levels in fish in Muddy Creek Reservoir annually for five years following dam closure.

4. Responsibility for ensuring that the proponent completes a detailed recreation facilities and access plan, and constructs the approved facilities and access routes in accordance with that plan as a condition of the Right-of-Way for the Muddy Creek site (Section 1.4.3.2, FEIS).

U. S. Forest Service

None.

Bureau of Reclamation

1. Responsibility for ensuring that the Agreement to provide for water substitution is limited to substitution between Muddy Creek Reservoir and Green Mountain Reservoir (Sections 1.1 and Chapter 2.0, FEIS).

2. Responsibility for establishing conditions under which a substitution made possible by the Agreement, referenced in Item 1 above, will be implemented, and for ensuring appropriate NEPA compliance if future substitutions or exchanges are authorized which have impacts different from those disclosed in this FEIS (Chapter 2.0, FEIS).

3. Responsibility for ensuring an annual public disclosure of proposed Muddy Creek Reservoir operations as part of the Ruedi-Green Mountain Reservoirs endangered species conservation releases for instream flow maintenance annual public meeting. The meetings will include federal, state, and local government agencies concerned as well as water user, conservation, and public interest groups. Agency input and public comments will be addressed within the operational constraints, demands, and flexibilities of the water management agencies (Section 1.2.1, FEIS).

6.0 PUBLIC MEETINGS AND WRITTEN COMMENTS AND RESPONSES - DRAFT EIS

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6.0 PUBLIC MEETINGS AND WRITTEN COMMENTS AND RESPONSES - DRAFT EIS

Comments on the Draft EIS (DEIS) were received during public meetings on October 2, 1987 in Steamboat Springs, Colorado; October 6, 1987 in Denver, Colorado; October 7, 1987 in Kremmling, Colorado; and October 8, 1987 in Yampa, Colorado. Transcripts of these meetings were prepared by the U.S. Forest Service. Written comments were received during the comment period following distribution of the DEIS. The comment letters received are reproduced in this chapter. Accompanying each identified comment is a response. Some of the responses give supplementary information or a reference to the appropriate section of the Draft EIS, Supplementary Draft EIS, or Final EIS.

The eighty-six comment letters have been grouped as to type of agency (federal, state, county/municipal, conservation groups, and individuals), and numbered sequentially. comments are referenced to the index number of the commenting agency and then are numbered consecutively within the comment letter (e.g. Index Number 1-12 refers to the 12th comment from the Army Corps of Engineers). The responses to the comments appear adjacent to the reproduced comment letter for ease of reference. In addition, to permit cross referencing the comment by discipline (aquatic biology, economics, etc.), an index to the comments by discipline is included.

INDEX OF WRITTEN COMMENTS BY SOURCE
ROCK CREEK/MUDDY CREEK RESERVOIR
DRAFT ENVIRONMENTAL IMPACT STATEMENT

INDEX NO.[1]/	AGENCY
Federal Agencies	
1.	Department of the Army Sacramento District, Corps of Engineers Sacramento, California
2.	United States Environmental Protection Agency Region VIII Denver, Colorado
State Agencies and Representatives	
3.	Department of Natural Resources State of Colorado Denver, Colorado
4.	Senator Tilman Bishop Senate Chamber Denver, Colorado
5.	Senator Paul Powers Denver, Colorado
Counties, Municipalities, and Districts	
6.	Grand County Board of Commissioners Court House Hot Sulphur Springs, Colorado
7.	Routt County Board of County Commissioners Steamboat Springs, Colorado
8.	Routt County Board of County Commissioners County Administrator Steamboat Springs, Colorado
9.	Ed Pokorney, Coordinator Intergovernmental Affairs Denver Water Department Denver, Colorado

---

[1]/ Comments are referenced to the index number of the commenting agency and then are numbered consecutively within the comment letter (e.g., Index No. 1-12 refers to the 12th comment from the Army Corps of Engineers.

10. Ken Mitchell
Director of Planning
Denver Water Department
Denver, Colorado

11. City of Grand Junction
Grand Junction, Colorado

12. Colorado River Water Conservation District
Glenwood Springs, Colorado

13. Grand County Water and Sanitation District No. 1
Winter Park, Colorado

14. Mesa County Water Association
Fruita, Colorado

15. Municipal Subdistrict
Northern Colorado Water Conservancy District
Loveland, Colorado

16. Orchard Mesa Irrigation District
Grand Valley Project
Grand Junction, Colorado

17. Winter Park Water and Sanitation District
Winter Park, Colorado

Conservation, Rafting, and Other Organizations

18. The Audubon Society of Western Colorado
Grand Junction, Colorado

19. Colorado Environmental Coalition
Denver, Colorado

20. Colorado Wildlife Federation
Denver, Colorado

21. Sierra Club
Rocky Mountain Chapter
Denver, Colorado

22. Kutak Rock & Campbell
(On Behalf of Colorado Trout Unlimited)
Denver, Colorado

23. Regional Vice President
Trout Unlimited
Wheatridge, Colorado

24. Colorado River Outfitters Association
Englewood, Colorado

25. Joni Ellis River Tours
Dillon, Colorado

26. Raftmeister
Vail, Colorado

27. Western River Guides Association, Inc.
Englewood, Colorado

28. The Colorado Archaeological Society
Publishers of Southwestern Lore
Montrose, Colorado

29. Kremmling Area Development Association
Kremmling, Colorado

30. Natural Energy Resources Company
Palmer Lake, Colorado

31. The Quahada Chapter
Colorado Archaeological Society
Grand Junction, Colorado

Attorneys and Individuals

32. Ruth Beckley
Littleton, Colorado

33. John T. Benton
Benton Land and Live Stock Company
Burns, Colorado

34. Mark J. Bernhardt
Rancho Del Rio, Colorado

35. Barbara Blackshear
Grand Junction, Colorado

36. Jim Blugerman
Georgetown, Colorado

37. Paul Bonnifield
Yampa, Colorado

38. John J. Browne
Grand Junction, Colorado

39. Steve Butler
Lakewood, Colorado

40. Charles R. Cole
Attorney at Law
Grand Junction, Colorado

41. Sally J. Cole
Grand Junction, Colorado

42. John S. Courtney
Toponas, Colorado

43. Howard S. Cox
Boulder, Colorado

44. Steven C. Downs
Steamboat Springs, Colorado

45. Mr. and Mrs. W. H. Dude'
McCoy,Colorado

46. Denise Ferriman
Steamboat Springs, Colorado

47. Tom Gagnon
Winter Park, Colorado

48. Paul H. Grant
Grand County, Colorado

49. Kit W. Haddow
Grand Junction, Colorado 81501

50. W. E. Haggerty
Grand Junction, Colorado

51. Pamela M. Hain
Steamboat Springs, Colorado

52. Joan Hoffman
Steamboat Springs, Colorado

53. Ingrid Karlstrom
Winter Park, Colorado

54. Peter M. Lagerman
Longmont, Colorado

55. James R. Linville
Steamboat Springs, Colorado

56. Stephen Lundy
Denver, Colorado

57. Al Marlowe
Lakewood, Colorado

58. Pamela Martin
Denver, Colorado

59. David G. Mateer
Boulder, Colorado

60. Mr. and Mrs. John McElroy
Kremmling, Colorado

61. Glen A. Miller
Grand Junction, Colorado

62. Claus Muhlbauer
Winter Park, Colorado

63. Gene Newell
Yampa, Colorado

64. Katharine Newton
Gerald S. Hollingworth
Steamboat Springs, Colorado

65. Bernice Overholt
Kremmling, Colorado

66. Charla Palmer
Steamboat Springs, Colorado

67. Al Permut
Louisville, Colorado

68. Charles F. Perry
Toponas, Colorado

69, Mary Jean Perry
Toponas, Colorado

70. Rex Peterson
Yampa, Colorado

71. James B. Phelps
Aurora, Colorado

72. John Q. Randolph
Steamboat Springs, Colorado

73. Fred Rasmussen
Salida, Colorado

74. Claudia D. Rector
Clifton, Colorado 81520

75. Daniel L. Ritchie
Grand River Ranch
Kremmling, Colorado

76. Vickie Rosenzweig
Steamboat Springs, Colorado

77. Charles A. Russell
Arvada, Colorado

78. Jacqueline Saputo
Oak Creek, Colorado

79. Rodney L. Scarpella
Fort Collins, Colorado

80. Jane E. Schleimer
Boulder, Colorado

81. John Spezia
Steamboat Springs, Colorado

82. Sidney J. Spiegel
Steamboat Springs, Colorado

83. Kim Vacariu
Steamboat Springs, Colorado

84. Mrs. Theodore B. Washburne
Englewood, Colorado

85. Charles B. White
Kirkland & Ellis
Denver, Colorado

86. Anthony W. Williams
Williams, Turner & Holmes, P. C.
Attorneys at Law
Grand Junction, Colorado

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ROCK CREEK/MUDDY CREEK RESERVOIR
DRAFT ENVIRONMENTAL IMPACT STATEMENT

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DRAFT ENVIRONMENTAL IMPACT STATEMENT (continued)

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PUBLIC MEETINGS ON
ROCK CREEK/MUDDY CREEK RESERVOIRS
DRAFT ENVIRONMENTAL IMPACT STATEMENT

A series of informal public meetings was held on the Rock Creek/Muddy Creek Reservoirs Draft EIS as follows:

October 2, 1987	Steamboat Springs, Colorado
October 6, 1987	Denver, Colorado
October 7, 1987	Kremmling, Colorado
October 8, 1987	Yampa, Colorado

While these meetings were informal in nature, a transcript of each meeting was prepared and is available for review at the U. S. Forest Service Supervisor's Office, Routt National Forest, Steamboat Springs, Colorado. The agenda for each meeting included an introduction by Jerry Schmidt, Routt Forest Supervisor; a discussion of purpose and need for the proposed projects and a description of the alternatives (including a slide presentation) by Bob Sprentall, Yampa Ranger District; a discussion of the BLM role in the process by Dave Atkins, BLM Kremmling Resource Area; a question and answer period and a comment period. During the question and answer period, a panel was available to respond to questions. The panel generally included: USFS representatives, BLM representatives, Colorado Division of Wildlife representative, consultants (Resource Consultants, Inc. and BIO/WEST, Inc.), and a representative from the Colorado River Water Conservation District (project proponent).

A review of the transcripts of each meeting indicates that the questions and comments all fall into one of the disciplinary categories indexed for the written comments. Many individuals who commented during the public meetings also submitted written comments. The responses to written comments which follow encompass all of the comments and concerns raised at the public meetings.

Comment Letter 1

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO CALIFORNIA 95814-4706

REPLY TO ATTENTION OF

October 23, 1987

Regulatory Section

Mr. Jerry E. Schmidt
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, Colorado 80487

Dear Mr. Schmidt:

The Corps of Engineers (COE), Sacramento and Omaha Districts has completed review of the Rock Creek/Muddy Creek Reservoir Draft Environmental Impact Statement (DEIS) and specific comments follow for your consideration. These comments are most specific to the purpose and need of the project and the wetlands impact analysis and reflect our concern of the Final Environmental Impact Statement (FEIS) to adequately provide the information required to facilitate preparation of the COE decision on a future Department of the Army Permit application(s).

We appreciate past considerations given to COE issues and look forward to continued cooperation and involvement in preparation of the FEIS.

The following comments represent the COE response to the DEIS (Comment numbers 23-28 were provided by the Omaha District):

1-1 1. General comment on Section 1.0, Purpose and Need for Action: The purpose and need discussion in this document is convoluted and confusing. The mandate of the River District is "to secure and insure an adequate supply of water, present and future, for irrigation, mining, manufacturing and domestic purposes within the District" and "to support or service water users in western Colorado." The discussion of the Windy Gap Project adjudication indicates that the Colorado Supreme Court ruled for adequate mitigation of the potential harm to present and prospective water users within the Colorado River drainage basin. Yet 90% of the water of this project will be leased to the Denver Water Board for 25 years and possibly longer and only 10% will be used to support and service water users in western Colorado. This purpose seems counter to the mandate of the River District and the intent of the Windy Gap judicial review. This purpose also implies that the water needs of western Colorado are relatively small or at least very poorly defined. The document should clearly reflect the purpose and need of the project and discuss the details of the present and future water needs in western Colorado.

Response

1-1 The Purpose and Need section was substantially rewritten for the SDEIS to include the federal role, applicant's purpose, general need, short-term need, and long-term need for the proposed project. (See Section 1.2 SDEIS).

Comment Letter 1

1-2 2. PAGE 11, PARAGRAPH 4: How would approval of the Two Forks project affect the need for Rock Creek or Muddy Creek? How does development of either of these reservoir sites serve as mitigation for Windy Gap Reservoir?

1-3 3. PAGE 1-6, PARAGRAPH 4: What segment of West Slope interests will receive economic benefit from the construction of a reservoir?

1-4 4. PAGE 1-8, PARAGRAPH 2: Is the cash payment provided the River District part of the funding associated with this DEIS?

1-5 5. PAGE 1-10, PARAGRAPH 4: What scenario can be drawn if Western Colorado establishes a viable need for greater that 10 per cent of reservoir yield prior to expiration of the 25-year lease?

1-6 6. PAGE 2-12, PARAGRAPH 5: Will there be wetland impacts or stream impacts associated with road construction? If so, then discuss.

1-7 7. PAGE 2-13, PARAGRAPH 1: Will protective measures be afforded the building provided it is relocated on-site? If so, then discuss these measures.

1-8 8. PAGE 2-13, PARAGRAPH 3: Recreation facilities should be monitored for a longer period of time. Five years may not provide an indication of actual future use trends.

1-9 9. PAGE 2-14, PARAGRAPH 2: Timing of diversion and water quality considerations should be addressed during the borrow area bypass.

1-10 10. PAGE 2-17, PARAGRAPH 5: Is the intent to serve West Slope interests defined as an economic or water issue?

1-11 11. PAGE 2-21, PARAGRAPH 1: Will 10 cfs be adequate to maintain the existing fisheries on this reach of Rock Creek? If so, why?

1-12 12. PAGE 2-21, PARAGRAPH 5: Will a borrow site downstream of the damsite confound development of the proposed mitigation effort for wetlands?

1-13 13. PAGE 2-26, PARAGRAPH 5: Same as comment (11) above.

Response

1-2 This project would provide a portion of the interim water supply needed by the Metro Denver Area beginning in about 1998 as projected by the Corps of Engineers (See Section 1.2.3.2 SDEIS). The relationship between this project and mitigation for Windy Gap is presented in detail in Section 1.3 SDEIS.

1-3 The 15 West Slope counties represented by the River District and the upper Colorado River Basin, in general, would benefit from the proposed project (See Section 1.2.2 SDEIS). As a result of the short-term need for water from the proposed reservoir and the River District - Denver Water Board lease, the project would generate the means to support the District's statutory obligations and present and future water needs in western Colorado (See Section 1.2.3.1 SDEIS). The project would also permit operational enhancement of the upper Colorado River water storage and delivery system (See Section 1.2.3.4 (SDEIS).

1-4 Yes

1-5 The construction of a 60,000 AF reservoir on Muddy Creek would provide considerably more reserve for West Slope use than the originally proposed 46,800 AF reservoir. The short-term demand scenario for the preferred alternative is presented in detail in Section 2.5.7.1 SDEIS.

1-6 Road construction impacts are listed in Table 4.3.6.1, page 4-44 of DEIS and Table 4.3.6.1, page 4-60 of SDEIS. Impacts of road construction are small.

1-7 If the Rock Creek alternative were selected, the final plan for the Stage Stop would be determined in cooperation with the State Historic Preservation Officer.

1-8 The discussion on this page does not indicate monitoring would be stopped after 5 years. The Forest Service would continue recreation monitoring for the life of the reservoir.

1-9 These issues would be addressed during the construction planning phase of the project. An overview of standard Forest Service erosion control practices and requirements applicable to the Rock Creek alternative is presented in Appendix C SDEIS.

1-10 The intent is defined as both an economic and a water issue.

Comment Letter 1

Response

1·11 The 10 cfs figure was set by the State of Colorado as sufficient to maintain the environment to a reasonable degree. No impacts from this flow were noted in the EIS since this flow is very near the present base flow during late summer and fall for most years, and therefore, change in flow with the reservoir would result in relatively little change in habitat as discussed in Section 4.2.7 of the DEIS.

1·12 Borrow would only be removed in the immediate vicinity of the staging area for dam construction. Therefore, the borrow area is not expected to confound development of the mitigation site which would be further downstream.

1·13 We assume your reference is to comment (12) above. See Response to Comment 1-12.

Comment Letter 1

1·14 14. PAGE 2-29, PARAGRAPH 3: Discuss whether 13 cfs flows below the damsite will be sufficient to raise water elevation for wetland mitigation while providing for development of the viable fisheries.

1·15 15. PAGE 2-29, PARAGRAPH 4: Discuss whether Resource Management Plans will be difficult to amend given present demonstrated needs for grazing allottments in the area.

1·16 16. PAGE 2-34, TABLE 2.7.1: It would appear erroneous to state there will be no water quality impacts under the Rock Creek alternative. There are conflicting wetland acreages given for **1·17** Muddy Creek Site C on pages 2-35 and 2-36.

1·18 17. PAGE 3-57, PARAGRAPH 4: A distinction should be made regarding "Cowardin" defined wetlands and wetlands protected under the Clean Water Act. There should also be reference to other valuable wetland functions.

1·19 18. PAGE 3-65, FIGURE 3.7.3: A figure similar to this portraying vegetation features inundated by Rock Creek Reservoir should be included in the FEIS.

1·20 19. PAGE 4-18, PARAGRAPH 3: Discuss whether channel maintenance requirements will pose problems for development of vegetative types associated with proposed wetland mitigation?

1·21 20. PAGE 4-52, PARAGRAPH 5: Discuss whether the potential for total dewatering is accounted for in future operational costs associated with a put and take fisheries.

1·22 21. PAGE 4-137, PARAGRAPH 4: A distinction should be made between a larger Muddy Creek Reservoir as it would apply to the Rock Creek or Muddy Creek individually.

1·23 22. PAGE 5-1 thru 5-18, 5.0 MITIGATION: The mitigation chapter does an excellent job in cataloging the mitigation measures proposed for the alternative projects. The COE anticipates further elaboration on-site specific mitigation plans in the FEIS. Conceptual maps providing the anticipated locations of improvements to raise wate levels, locations of fences, specific vegetative planting scheme, vegetative improvement methodology, fisheries improvement measures, and all other measures associated with mitigation of impacts. The COE essentially will expect a refined mitigation plan with the specificity necessary to conduct an appropriate compliance monitoring program. An entity responsible for management of the mitigation areas must be identified prior to release of the FEIS. We look forward to providing additional assistance in development of the final mitigation plans.

Response

1·14 The proposed 13 cfs would not be sufficient to flood downstream wetlands without water control structures. Refer to the Muddy Creek Reservoir mitigation section (Chapter 3.0 FEIS) where water management is discussed. A detailed mitigation plan for the Muddy Creek site has been prepared and discusses the details on water management in regard to wetlands and fisheries.

1·15 The FEIS (Section 1.9) includes the proposed amendments to the RMP necessary to allow issuance of a right-of-way for the project.

1·16 See discussion Section 4.3.3.5 SDEIS. There are no significant adverse impacts to Rock Creek temperature or water quality projected from a water resources point of view. For potential impacts to the fishery see Section 4.3.7.1 SDEIS.

1·17 See Table 2.7.1, page 2-42 and 2-43 of the SDEIS for clarification.

1·18 The SDEIS reported Cowardin wetlands. In August 1989, a survey was completed in coordination with the Sacramento District to delineate wetlands subject to COE regulation. A copy of the jurisdictional wetlands survey report is available from the Grand Junction office of the COE.

Wetlands have gained considerable recognition for their functional value in both biological and physical systems. These functions include groundwater discharge and recharge, flood storage and dessynchronization, shoreline anchoring and dissipation of erosive forces, sediment trapping, nutrient retention and removal, food chain support, wildlife and fish habitat, and active and passive recreation and heritage value. The primary functional value that would be impacted includes wildlife habitat value. The reservoir would provide equal or superior functions in regard to the other functional values listed.

1·19 See Figure 3.7.1 of the SDEIS. Shaded area shows the area of inundation.

Comment Letter 1

Response

1·20 Channel maintenance discussions in this section refer to Rock Creek and no proposed wetlands mitigation occur below Rock Creek Dam.

1·21 The $10,000 annual cost for fish stocking would include stocking following dewatering of the reservoir. Please note in the SDEIS that due to changes in proposed water use, dewatering of the Rock Creek Reservoir would no longer be expected to occur.

1·22 Please see the discussion on p. 4-139 of the DEIS where the specific cumulative effects of a larger Muddy Creek Reservoir are discussed.

1·23 We appreciate your involvement in developing mitigation for this project. A detailed mitigation plan has been developed for the Preferred Alternative of the SDEIS, Muddy Creek. That plan has the detail you discuss in this comment. (See Chapter 3.0 FEIS).

Comment Letter 1

Response

23. Section 1.4.2 essentially states that the underlying purpose and need of the project is to provide a reliable source of water when the water rights of present and future western Colorado enterprises are not in priority. This same section states that one of the two major downstream water rights controlling the administration of the river is the Shoshone Power Plant right of 1902. This same section further states that in 1986, the Denver Water Board and the Public Service Company of Colorado, which owns and operates the Shoshone Hydroelectric Plant negotiated an agreement to subordinate the senior Public Service Company water right. It is our view that the Shoshone Agreement could "free-up" Williams Forks Reservoir from replacement releases to satisfy the Shoshone call. Waters could be reserved to meet other needs such as the Denver Water Board's

1·24 for the second phase of the Blue River Exchange. Since this is similar in function to the proposed Rock Creek project, and since it is our understanding that no Federal permits should be required to implement the Shoshone Agreement, it should be categorized as a No Federal Action alternative to the proposed Rock Creek project.

24. Section 1.3.6 states that the River District will retain approximately 10 percent of the Rock Creek or Muddy Creek reservoir capacity and yield for West Slope uses. Since the Denver Water Board is a major participant in this project, it

1·25 seems reasonable under a No Federal Action alternative that the Board could agree to sell surplus Williams Forks Reservoir capacity and yield for West Slope uses on a permanent basis. This would not be unlike current Board action in which it sells surplus water in its present service area. Selling water to the West Slope would simply expand the Board's service area.

1·26 25. Section 4.5.4.1 - It is not understood how impacts can occur from present trends. CEQ regulations do not identify this as a source of impacts.

1·27 26. Section 4.5.4.3 - The Rock Creek/Muddy Creek project is not a site-specific alternative in the Metropolitan Denver Water Supply EIS, nor is the project's cumulative impacts noted in the EIS. No project by itself, by definition, can have cumulative impacts.

1·28 27. Section 4.5.5 - This section states that the analysis that follows addresses past and present projects, but the analysis discusses reasonably foreseeable future actions also.

1·29 28. Section 4.5.6 - Are the cumulative impacts summarized significant or insignificant?

1·24 The Denver - Public Service Company Shoshone Agreement has been included as a non-structural alternative eliminated from detailed study in the SDEIS (See Section 2.2.3.2).

1·25 The proposed project meets a short-term need for water in the Metro Denver Area (See Section 1.2.3.2 SDEIS). The question of whether there is a surplus of water in Williams Fork Reservoir is addressed in the System-Wide EIS in relation to needs projected by Denver. A No Federal Action alternative would not meet the long-term need for this project or promote other benefits to the West Slope as discussed in Response to Comment 1-3.

1·26 Present trends are discussed on p. 4-140 of the DEIS. This discussion includes present trends that are increasing recreational use of the study area. Trends refer to cumulative effects that are occurring due to a variety of factors, rather than a single project. Therefore, present trends are a valid and important potential cumulative impact that is covered by CEQ guidelines.

1·27 The System-Wide EIS considers nearly 30 reasonably foreseeable actions in the cumulative impacts analysis, including Rock Creek/Muddy Creek (Blue River Exchanges-Technical Appendix 4B, Volume 5). The slight cumulative impact reported in Section 4.5.4.3 (DEIS/SDEIS) is a result of the more detailed demand pattern analyzed.

1·28 The projects analyzed include only those projects for which Biological Opinions or Assessments have been prepared. These projects are considered "present" projects. Many of these projects are not yet built, but could be built within the same time frame as Rock Creek or Muddy Creek reservoir.

1·29 Whether or not an impact was considered significant was noted in Sections 4.5.4.2 through 4.5.4.3 and 4.5.5. Section 4.5.6 primarily summarizes the significant impacts noted in the other sections.

Comment Letter 1

Thank you for the opportunity to comment on the DEIS. If you have any questions, please contact Ken Jacobsen at telephone (303) 243-1199.

Sincerely,

Grady E. McNure
Chief, Regulatory Unit 4
764 Horizon Drive, Room 211
Grand Junction, Colorado 81506-8719

Copy Furnished:
Mr. John Morton, Chief, Regulatory Branch, U.S. Army Engineer District, Omaha, 6014 U.S. Post Office and Courthouse, Omaha, Nebraska 68102
Mr. Richard Gorton, Planning Division, U.S. Army Engineer District, Omaha, 6014 U.S. Post Office and Courthouse, Omaha, Nebraska 68102

Response

Comment Letter 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET—SUITE 500
DENVER COLORADO 80202-2405

Ref: 8PM-EP

NOV 6 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, CO 80487

Re: Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir, Routt and Grand Countries, Colorado

Dear Mr. Schmidt:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act the Region VIII Office of the Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir Project. EPA has prepared the following comments for your consideration in the preparation of the Final EIS for the subject project. EPA appreciates your efforts in coordinating the many meetings and pre Draft EIS reviews since initiation of the scoping process. EPA also appreciates the extension the Forest Service granted during this formal Draft EIS review process and our October 23, 1987 meeting where we were able to present our major concerns with the Draft EIS and receive Forest Service response to these concerns. You and your staff are to be commended for your efforts to develop a defensible NEPA document for an extremely complex project. As a result of our October 23rd meeting, EPA anticipates the Final EIS for the subject project will be sufficiently detailed to address our concerns. Attached you will find EPA's detailed comments on the subject document for your consideration during preparation of the Final EIS.

As was discussed at the 23rd meeting, EPA has three major concerns with the level of detail contained in the Draft EIS. First, EPA believes all the direct impacts of the short-term scenario have not been fully documented. We discussed our concerns with lack of analysis in the Williams Fork River below Williams Fork Reservoir and the Blue River between Dillon and Green Mountain Reservoirs. EPA's primary concern is the lack of water quality and aquatic life analysis in the Draft EIS for these stream segments. It is our understanding the Forest Service agrees with our concern and will expand the analysis to include these segments in the Final EIS. Since the meeting on the 23rd, EPA has had the opportunity to review the Draft Memorandum of Agreement between the Colorado River Water Conservation District, the City and County of Denver, the Northern Colorado Water Conservancy District and the Municipal Subdistrict of the Northern Colorado Water Conservancy District. This MOA provides the groundwork for the Rock Creek Reservoir Lease Agreement which was used by the forest Service to develop the purpose and need for the subject project in the short term. The MOA indicates the Rock Creek Lease Agreement is to be used (in part) by Denver for Denver's proposed Straight Creek Exchange. This is new information for the EPA. Therefore EPA must request at this time that the impacts of Rock Creek/Muddy Creek operations on Straight Creek also be included in the Final EIS.

2-1

2-2

Response

2-1 As a result of EPA's concern the USFS formed a water quality work group which included representatives of the Forest Service, EPA, River District and RCI. The work group met in Denver at EPA on April 19, 1988 and formulated a work plan which included additional hydrologic analysis for the Blue River between Dillon and Green Mountain Reservoirs as necessary to apply a model developed jointly by EPA, COE, Colorado Department of Health, and Denver Water Department for the system-wide EIS. Additional analysis on the Williams Fork River was not considered necessary by the work group. This model was applied to assess the short-term water quality impacts of Rock Creek or Muddy Creek Reservoirs on the Blue River. Results are presented in the SDEIS (See Sections 3.4.3.4, 4.3.3.4, and 4.3.3.5).

2-2 The impacts of Denver's proposed Straight Creek project are disclosed in Technical Appendix 4B to the System-Wide EIS. The availability of water from Rock Creek or Muddy Creek would not change the impacts disclosed in that document.

Comment Letter 2

2·3 Secondly, EPA is concerned that the Draft EIS does not portray the impacts resulting from the ultimate long term West Slope needs. EPA understands the Forest Service's difficulty in projecting where, when and to what extent these future impacts would occur. We pointed out this inherent project definition difficulty in our initial scoping comments. At our 23rd meeting, we discussed several options available to the Forest Service to meet their NEPA responsibilities in this regard. EPA's preference is that the Forest Service make a reasonable assessment of these future effects in the Final EIS. We believe there is enough information available to develop a reasonable projection of future project effects. EPA again offers its assistance in developing a suitable projection.

2·4 EPA's third major concern relates to the scope of alternatives presented in the Draft EIS. EPA believes it is necessary to include an alternative which could meet both the short term Denver need as well as the stated long term western Colorado needs. The potential exists for a reservoir of 40,000 acre feet safe yield which could provide both the east slope and west slope with long-term safe yields, and depending on locality, with less net environmental damage. We understand the Forest Service's concern with this alternative, and perhaps, based on the Forest Service's decision regarding item two above, this concern may be resolved. However, EPA must comment on the Draft EIS in hand. We strongly believe the public and decision maker should be provided with analysis of an option which could better meet the stated project purposes and need.

Based on the procedures EPA uses to evaluate the adequacy of the information presented in the Draft EIS and the environmental acceptability of the impacts portrayed for the various alternatives, EPA rated each alternative, and the adequacy of the Draft EIS, separately. EPA will list the Draft EIS for the Rock Creek/Muddy Creek Reservoir in the Federal Register as follows:

Rocky Creek Reservoir Alternative EO (environmental objections)
This conclusion is based on the level of unmitigable impacts documented in the Draft EIS.

Muddy Creek Reservoir Alternative EC (environmental concerns)
Although the Draft EIS documented that there would be no unmitigable impacts, EPA is still concerned about the implementability of the mitigation plan.

No Action Alternative LO (lack of objections)
Environmentally, this is the lesst damaging alternative. EPA recognizes this alternative will likely result in environmental impacts in the future.

EPA will list the adequacy of the Draft EIS in the Federal Register in catagory 2 (insufficient information). We have listed above the major areas EPA feels must be addressed to allow the reader to fully assess the project related environmental impacts.

Response

2·3 A detailed West Slope demand scenario based on the most foreseeable long term water use in western Colorado was developed and analyzed for the SOEIS. The long-term need for water from the proposed project is presented in Sections 1.2.3.3 and 2.4.7.2 and impacts of this West Slope demand are discussed by discipline in Chapter 4.

2·4 The SOEIS analyzes the impacts of a 60,000 AF reservoir on Muddy Creek with an estimated yield of 23,000 AF. A larger site on Muddy Creek (Site A) with a potential capacity greater than 100,000 AF has been considered by others and is evaluated in the SOEIS (See Section 2.2.2.3). This site was eliminated from detailed study for the reasons presented in Section 2.2.2.3. See also Section 1.5.3 SOEIS.

Comment Letter 2

We again express our appreciation of your coordination efforts during this NEPA process. If you need further explanation of our comments, or need assistance during the remainder of the EIS process, please contact Dave Ritter of my staff at (303) 293-1310 or (FTS 564-1930).

Sincerely,

James J. Scherer
Regional Administrator

cc: Gary Cargill, USFS
Dave Atkins, BLM
William Miller, DWB
Roland Fischer, CWCB
Galen Buterbaugh, USFWS
James Ruch, CDOH

Response

Comment Letter 2

EPA DETAILED COMMENTS ON THE DRAFT EIS FOR THE ROCK CREEK/MUDDY CREEK RESERVOIR PROJECT

2·5 Page 1-9 first paragraph. This paragraph indicates there are local concerns over instream flows in the Upper Colorado. The EIS should provide detailed discussion of these concerns and document how the proposed projects will affect these instream issues.

2·6 Page 1-15 Section 1.8 - EPA requests the following language be inserted in this section to provide the reader with clarification of the current Colorado 401 certification process:

"For reservoir projects, the State has indicated it currently lacks full authority to conduct the 401 certification for operation and maintenance aspects of proposed projects. The State Water Quality Control Commission conducted a hearing November 2, 1987 for purposes of considering changes to its 401 Certification Regulations. At this hearing, the Commission decided to hold a follow-up hearing in January to consider adoption of regulatory changes. If the State should adopt changes in the future which allow it full authority to conduct the 401 certification for operation and maintenance of reservoir projects, and such changes are effective by the time such certification is requested (typically at the time the public notice for the 404 permit is issued), then the State will conduct the entire 401 certification. If the State does not have full authority at the time certification is requested, EPA will conduct certification for operation and maintainence of the proposed projects."

Note that the Corps of Engineers' Section 404 regulations found at 33 CFR 320.4(d) state that certification of compliance with applicable water quality standards required under Section 401 will be considered conclusive with respect to water quality considerations unless the Regional Administrator of EPA advises of other water quality aspects to be taken into consideration.

2·7 Page 2-1 EPA continues to conclude the criteria selected to determine alternatives for inclusion in the Draft EIS are improper and result in a frustration of the NEPA goals. We pointed out this problem in our detailed comments on the Preliminary Draft EIS (PDEIS) nearly a year ago, yet the language contained in the Draft EIS is identical to that of the PDEIS. To reiterate our previous comments: All three criteria attempt to comply with the Azure-Windy Gap Settlement Agreement. The CEQ NEPA regulations clearly indicate that all reasonable alternatives, to include alternatives not within the jurisdiction of the lead agency, must be rigorously explored and objectively evaluated (40 CFR 1502.14). We do not feel it is adequate to only include alternatives which comply with the Azure-Windy Gap Settlement Agreement. Especially, when the documented need for west slope water development does not occur in the Rock Creek/Muddy Creek area. The DEIS should be revised to include alternatives which clearly provide solutions to meet the documented West Slope water needs.

Response

2·5 The purpose of the proposed project is to mitigate the impacts of the Windy Gap project and allaviate local concerns over instream flows (See Section 1.2.2 SDEIS). As discussed in Section 1.2.3.4, the proposed project will permit enhancement of the operation of the Upper Colorado River water storage and delivery system with potential benefits derived from coordinated operations of Williams Fork and Green Mountain Reservoirs with the proposed project. See also Response to Comment 48-5.

2·6 On February 2, 1988, the Colorado Water Quality Control Commission adopted revisions to their Regulation 2.4 - Certification of Federal Licenses and Permits (401 Certifications). These regulations provide for the certification by the Water Quality Control Division of the construction, operation and maintenance phases of a water project.

2·7 At the request of EPA and other agencies the alternatives considered in the SDEIS now include consideration of a non-structural alternative (Denver - PSC Shoshone Agreement) not within the jurisdiction of the co-lead agencies (Section 2.2.3.2). A change in legal or judicial controls as an alternative to construction of a reservoir is also considered as suggested by EPA (Section 2.2.3.1) and a detailed West Slope demand scenario involving oil shale as a reasonable basis for projecting long-term water demand is also included in the SDEIS (Section 2.4.7.2). The screening criteria for alternatives consider not only the complex and lengthy legal actions and negotiations which establish the purpose of the proposed project, but also the resources available to the proponent to implement the proposed action. The range of alternatives evaluated in the SDEIS includes all reasonable alternatives regardless of jurisdiction as required by NEPA and the screening criteria insure that the alternatives studied in detail are in consonance with the purpose and need for the proposed project.

Comment Letter 2

2

Additionally, based on the new information contained in Section 1.3.6 of the Draft EIS, it appears the financial constraints of the Windy Gap Settlement have been significantly ameliorated. A simple calculation (25 yrs. x 15,000 AF/yr x $250/AF/yr = $93,750,000) indicates the district could receive additional income to finance the alternatives eliminated on basis of cost. We recommend the Forest Service revise the EIS to include all reasonable alternatives. The criteria selected to determine reasonableness should be directed toward meeting the underlying project purpose and need in supplying water to Metropolitan Denver and the West Slope.

2·8 Page 2-4 Section 2.2.2.2 - EPA recognizes the difficulties involved in modifying the Azure-Windy Gap Agreement. However, as discussed previously, we do not agree the limitations of the Azure-Windy Gap Agreement limit the NEPA alternative selection process. When an alternative is developed which benefits all parties, the agreements will likely follow. The last sentence of this section is confusing. Were the scoping suggestions directed toward making institutional changes which would not result in improved water supplies? What institutional changes could be made which would improve water supply?

2·9 Page 2-5 Section 2.2.2.4 - The large Muddy Creek Reservoir is a prime example of a reasonable alternative for meeting the underlying project purpose and need. The project could be cost effective given the price the east slope is willing to pay for west slope water: it could be built in stages (add pumping later when demand is present) to temporarily avoid some of the impacts; and because of its size may provide the needed stabilization of water supplies in the upper basin counties. EPA recognizes some of the potential environmental impacts associated with a large Muddy Creek. However, these should be thoroughly explored, and documented in the present NEPA process. Until the impacts, and potentials for mitigation, are thoroughly investigated, the decisionmakers will not be provided the information necessary to select the alternative which provides the greatest social benefit with the least environmental costs.

2·10 Page 2-6 Section 2.2.2.6 - Again EPA stresses the need for the Forest Service to include additional reasonable alternatives. There are reservoir sites in the Eagle Basin which could provide replacement flows for the Shoshone call. The criteria that the Eagle Basin is not within the proximity of Windy Gap appears to be unduly restrictive in that it eliminates the examination of alternatives in a principal area of West Slope need.

Response

2·8 The alternative selection process has not been limited by the Azure-Windy Gap Agreement (See Response to Comment 2-7), but it must be recognized that the Azure-Windy Gap Agreement and Supplemental Agreement which provide the financial basis for the proposed project also restrict the range of options for which these funds can be used (See Section 1.3.5). The Denver - PSC Shoshone Agreement is an example of an institutional change which might improve water supply, but as shown in Section 2.2.3.2 and Appendix E of the SDEIS, it is not functionally equivalent to the proposed reservoir in terms of yield and would not supply any of the additional water needs or operational enhancement made possible by the proposed project.

2·9 A large (100,000 AF plus) reservoir on Muddy Creek was evaluated and eliminated from detailed study for the reasons listed in Section 2.2.2.3 SDEIS.

2·10 At the request of EPA and other agencies additional reasonable alternatives have been considered in the SDEIS. Projects on the Eagle River were considered but eliminated from detailed study because they do not meet the purpose of the proposed project (See Response to Comments 2-7 and 2-8).

Comment Letter 2

2·11 Page 2-19 last paragraph - This paragraph lists four categories of future west slope water uses. EPA would like to point out that instream uses should also be analyzed in the EIS. We mentioned several of these uses in our 27 August 1985 initial scoping letter for this project. They included flow augmentation to benefit the Colorado Salinity Control Program and instream fishery uses. The Western Engineers 1986 report on water needs in the basin also included in-stream minimum flow demand for fisheries and recreation purposes. These purposes are real and should be thoroughly documented in the EIS.

2·12 Page 3-31 third paragraph - The second line indicates "Actual historic flows" are used as a basis for impact analysis. Is "Actual" historic flow equal to simulated historic (zero) sales flow, simulated (22,800 acre-foot) sales, or something else?

2·13 Page 3-57 last paragraph - The baseline discussion of wetlands should clearly discuss all existing values of wetlands, not just the uses by man of the wetlands.

Page 4-9 Section 4.3.3.1 - This section indicates it is difficult to accurately forecast the quantity and timing of future west slope water demand. The Draft EIS also indicates "in general" the east slope lease places greater hydrologic demands on the Colorado basin streams than the current projections of west slope demand. As a result of these conclusions by the Forest Service, West Slope projections were not displayed in the DEIS, nor were the impacts of West Slope use of project water documented.

As we have indicated in the past, this is an unacceptable approach for a NEPA document. NEPA directs the agency to document the environmental impacts of implementing actions, or alternatives to those actions, which will meet the underlying purpose and need of the proposed action. This direction is primarily contained in the CEQ Regulations at Sections 1502.13 and 1502.14.

2·14 Given the information available for the DEIS, the EPA believes the impacts of the future west slope use of the proposed reservoir can be projected to a level of detail necessary to document site specific impacts. We base this conclusion on the information contained in the Western Engineers, Inc., 1986 report on Water Needs and Development Projects in the Colorado River Basin, the Resource Consultants, Inc., 1987, Rock Creek and Muddy Creek Hydrology Technical Report, and the Bureau of Reclamation, 1985, Draft Supplement to the Final Environmental Statement, Colorado-Big Thompson, Windy Gap Projects, Water Marketing Program for Green Mountain Reservoir, Colorado. The Green Mountain EIS indicated there was a known demand for 6,000 AF in excess of available supply

Response

2·11 At the request of EPA and other agencies a more definitive West Slope demand pattern was developed and evaluated in the SDEIS. Discussion with agencies concerned resulted in establishing an oil shale demand as the most reasonably foreseeable basis for projecting future West Slope water demand (See Sections 1.2.3.3 and 2.4.7.2). This demand is quantified in 2.4.7.3 SDEIS for Rock Creek and 2.5.7.2 for Muddy Creek.

2·12 Actual historic flows are derived from the USGS gage record without modification. Simulated historic flows (referred to as simulated base flows in SDEIS to avoid confusion) are historic flows of record modified by the assumptions of the Bureau of Reclamation Green Mountain simulation model at a Green Mountain sales level of 22,800 AF, the preferred alternative in the USBR Green Mountain water marketing EIS.

2·13 See Response to Comment 1-18.

2·14 See Response to Comment 2-11. The Western Engineers report is not used in the SDEIS as a basis for projecting West Slope demand.

Comment Letter 2

at that time. The Western Engineers report indicates the basins where the supply will be needed. The CEQ regulations for incomplete or unavailable information (Section 1502.22) indicate if the information is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant the agency shall include the information in the environmental impact statement. As indicated in our discussion of project alternatives, EPA believes the hydrologic analysis thoughout the upper Colorado Basin, and documentation of the associated effects, is essential to allow a reasoned choice among alternatives. EPA also believes the costs of developing this information is not exorbitant as the models and assumptions are presently available. Again we point out this analysis was requested in the scoping process as well as several times during EPA's review of preliminary documents.

2·15 Page 4-137 Section 4.5.4.1.- Windy Gap project, and its effects, should be included in this analysis.

Response

2·15 The Windy Gap Project is included in the discussion on rare fish in Section 4.5.5.

Comment Letter 3

STATE OF COLORADO ROY ROMER, Governor

DEPARTMENT OF NATURAL RESOURCES

1313 Sherman St, Room 718, Denver, Colorado 80203 866-3311

Executive Director
Board of Land Commissioners
Mined Land Reclamation
Division of Minerals
Oil and Gas Conservation
Division of Parks & Outdoor
Soil Conservation Board
Water Conservation Board
Division of Water Resources
Division of Wildlife

October 2t, 1987

Jerry L. Schmidt, Forest Supervisor
Routt National Forest
29587 West US 40, Suite 2D
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

State agencies have completed a review of the Rock Creek/Muddy Creek Reservoir Draft Environmental Impact Statement (DEIS). In general, we found this document adequate in scope and depth and exceptionally readable. While our specific comments do address the need for additional information in some areas, you and your staff are to be commended for a good report.

As requested in your transmittal letter of August 25, 1987, state agencies have deliberated as to the best alternative site, Rock Creek or Muddy Creek, for the proposed reservoir. Based on these deliberations we offer the following comments to you and the Bureau of Land Management for consideration in reaching a decision on the preferred alternative. It should also be noted that the state legislature last session authorized the Colorado Water Conservation Board to finance construction of the Rock Creek Dam and reservoir. Of course the Board will not proceed with funding until the project proponents have complied with the appropriate local, state and federal laws and regulations.

3·1 An issue that surfaced during our review concerned the fact that project proponents and others have gone on record stating the need to select and build the Rock Creek alternative in order to preserve Muddy Creek as a possible site for a larger joint use reservoir in the future. We believe the DEIS adequately presents the information needed to distinguish between the alternatives for an approximately 50,000 acre-foot reservoir in the Rock Creek or Muddy Creek location. The DEIS does not, however, provide the broader discussions needed to evaluate long term development scenarios such as the construction of a larger Muddy Creek reservoir. If long term scenarios for Muddy Creek are to be introduced into the Decision between the 50,000 acre-foot Rock Creek and Muddy Creek alternatives, considerable additional text and analysis must be presented to appropriately expand the scope of the NEPA process.

The proposed Muddy Creek reservoir site is clearly preferred from a fish and wildlife perspective. The adverse impacts to big game winter

Response

3·1 The SDEIS now considers and has selected a 60,000 AF reservoir on Muddy Creek at Site C as the preferred alternative. The comment made that a Rock Creek site should be selected to preserve Muddy Creek for a larger (100,000 AF) reservoir in the future was not an agency decision factor (See additional discussion in Section 2.2.2.3 SDEIS).

Comment Letter 3

range associated with Muddy Creek can be adequately mitigated and the project offers the benefits of a new reservoir fishery and a tailwater fishery. Conversely, the Rock Creek alternative would inundate an extremely high quality natural fishery, a significant resource loss which is not adequately mitigated by the measures presented in the DEIS. The fishery value of Rock Creek at the proposed reservoir site is

3·2 sufficiently high and uncommon to warrant playing a major role in the decision between the two site locations.

3·3 The Muddy Creek site does contain occurrences of Osterhout's milkvetch, a plant proposed for federal listing as threatened or endangered. Before Muddy Creek could be considered the preferred alternative, a determination would be needed that impacts to this plant species can be acceptably mitigated. Specific recommendations to adequately mitigate impacts for this species are contained in the more detailed state agency comments attached to this letter.

Neither of the two reservoir sites appears to offer a clear advantage in terms of water quality, water quantity, transportation, geologic and cultural resource considerations. In some cases this reflects a need for more information to allow an adequate comparison of the sites. Specifically, the Rock Creek and Muddy Creek sites may both pose geologic problems for dam construction. The DEIS needs to provide

3·4 geologic maps or cross sections. More rigorous geologic documentation will be required prior to dam construction at either location. Impacts

3·5 to State Highways 134 and 40 are also only generally discussed and need to be quantified with appropriate mitigation shown. Cultural resource

3·6 impacts will not be identified until more detailed surveys are completed for the preferred alternative location. The DEIS should note this and state that cultural resource mitigation will be tailored in response to the resources and conditions defined by these surveys.

More detailed state agency comments on the DEIS are provided as an attachment to this letter. We remain very interested in your decision process and the means by which your agency and the Bureau of Land Management will weigh these comments with those of other local, federal and interest group issues in reaching a balanced decision on a preferred alternative. We are available to participate or assist in these deliberations at any time.

Please contact Laurie Mathews or me if you would like to discuss further any of these consolidated state agency comments.

Sincerely,

Dennis W. Donald
Acting Executive Director

/dat:7447
Attachment

cc: State Agency Reviewers

Response

3·2 As discussed in the DEIS and SDEIS, the analysis supports your statement and it was considered in the selection of the preferred alternative.

3·3 Mitigation for the rare plant was presented in Section 5.3.3 of the DEIS. This mitigation has been refined and is discussed in Sections 4.4.6.3 and 5.3.3 of the SDEIS, and also in the Biological Assessment for the Muddy Creek alternative and the Muddy Creek Reservoir Mitigation Plan.

3·4 The Rock Creek and Muddy Creek sites are different geologically and each would present different problems regarding dam design and construction. All dam sites present unique problems for design and construction. The potential problems which have been identified or could be reasonably anticipated at the Muddy Creek and Rock Creek sites are not "fatal" and could be addressed by current engineering technology. More rigorous geologic documentation would be required at either location prior to construction. This additional documentation would be performed during the design phase if the proposed project is permitted. Geologic maps and cross sections are available in reports prepared by Morrison-Knudsen Engineers, Inc. and Michael W. West & Associates, Inc. (See Supplementary Information to Section 3.2.2 in Chapter 2.0 FEIS).

3·5 A discussion of potential impacts of proposed alternatives on State Highways 134 and 40 is contained in the DEIS and SDEIS and is sufficient to differentiate between impacts of the alternatives. The preliminary design considered federal and state highway design standards. If a project is permitted, roadway modifications will be addressed in final design and will comply with all Federal and State highway standards and specifications.

3·6 We agree with your comment and Section 4.3.13.2 of the DEIS discusses the proposed mitigation.

Comment Letter 3

ROCK CREEK/MUDDY CREEK DEIS
COLORADO STATE AGENCY COMMENTS

DIVISION OF WILDLIFE

Rock Creek

The natural Rock Creek stream system provides an extremely high quality fishery that stands out from all other stream systems in this part of Colorado and makes it a unique asset to the state. The inherent characteristics of this stream have created an environment that produces a quality fishery. Reproducing such an environment on another stream system for mitigation may be extremely difficult, if not impossible. Egeria Creek does not provide a comparable fishery to Rock Creek and may

3·7 not be capable of providing adequate mitigation for the lost values at Rock Creek. Other potential limiting factors at Egeria Creek, such as water quantity and quality problems, may make the fisheries mitigation plan even less likely to be successful.

We agree with the DEIS assessment that Egeria Creek mitigation would not replace the lost Rock Creek stream fishery. However, it is

3·8 unacceptable to end the mitigation plan on that note. A new fisheries mitigation plan needs to be developed or additional mitigation provided to fully replace the valuable fishery at Rock Creek. We suggest the East Fork of Troublesome Creek, above Kremmling, as an alternative mitigation area with better fisheries values than Egeria Creek.

3·9 The proposed fisheries mitigation plan is deficient in the areas of monitoring, budgeting Operation/Maintenance (O&M) costs, water rights, and in addressing the impact to fish populations below the dam site. Timely monitoring is necessary to determine if mitigation objectives are being satisfied. The monitoring program should trigger specific additional work or a contingency plan, if fishery objectives have not been met at the end of the five year monitoring program. Operation and Maintenance costs necessary to insure the continued effectiveness of the mitigation project should be budgeted for the life of the project.

3·10 Water quantity at Egeria Creek could prevent a quality fishery from becoming established. This is a concern because of upstream irrigation diversions and because in the past we have observed a dry channel at the Highway 131 bridge. Therefore, the mitigation project needs to have decreed water rights for the amount of water necessary to satisfy mitigation plan objectives.

3·11 The fish populations below the Rock Creek dam site will lose spawning habitat, an impact which the DEIS states will be mitigated by stocking by the DOW. This mitigation proposal is unsatisfactory for the following reasons: 1) a stocked fish population does not replace a wild fish population, and 2) the project proponent should be responsible for the stocking.

3·12 Wetlands at the Rock Creek project area provide high quality wildlife habitat values. Mitigating these wetland values would be more difficult than mitigating the lower quality wetlands at the Muddy Creek project area. We therefore feel the Muddy Creek wetlands mitigation plan is more likely to be successful.

Response

3·7 The analysis in the SDEIS agrees with your conclusion. Please see Section 5.2.3 in the SDEIS.

3·8 Additional information on the potential for Egeria Creek to mitigate the loss at Rock Creek is presented in Section 5.2.3 of the SDEIS. This section points out that the quantity of aquatic habitat at Egeria Creek could replace the quantity lost at Rock Creek, but that the quality of the habitat that could be produced at Egeria Creek would not replace the quality of the habitat lost at Rock Creek. It was determined by an interagency Wildlife Work Group that guided the impact assessment of the EIS that the quality of the Rock Creek habitat could not be realistically replaced, and that the best way to indicate this was to show an unavoidable adverse impact. The Colorado Division of Wildlife was a member of the Wildlife Work Group.

3·9 Additional information on the mitigation plan is presented in Section 5.2.3 of the SDEIS. A detailed mitigation plan that would include much of the information you question would be developed if Rock Creek was the ultimate site selected by the Forest Service and BLM.

3·10 This concern was addressed in Section 5.2.3 of the SDEIS.

3·11 As discussed in the DEIS and Section 4.3.7.3 of the SDEIS, it is indicated that mitigation as proposed would not fully mitigate the impact to fisheries below the dam. The proposed mitigation suggests that the present stocking which occurs in the reservoir basin be applied to the area below the dam since the proponent would be responsible for stocking the reservoir.

3·12 We appreciate your comment. As discussed in both the DEIS and the SDEIS, costs for mitigating Rock Creek wetlands would be greater than costs for mitigating Muddy Creek wetlands, even though more acres of wetland occur at Muddy Creek. The reason is that higher quality wetlands are more difficult and more costly to mitigate than low quality wetlands.

Comment Letter 3

Muddy Creek

This reservoir would inundate critical deer and elk winter ranges and would lie in the path of migration routes. The mitigation plan for these impacts was developed by the Bureau of Land Management, Division of Wildlife, the River District, and their consultants. The proposed big game mitigation plan appears adequate because it directs the mitigation effort where it will do the most good.

Muddy Creek currently does not provide any sportfishery in the project area vicinity. The Muddy Creek alternative would create a reservoir with sportfishery potential and a tailwater reach approximately six miles long with sportfishery potential. These benefits are very positive aspects of the project.

3·13 Some of the best coldwater sportfishing in Colorado occurs below reservoirs. In order to take advantage of the tailwater fishery potential at Muddy Creek, the reservoir outlet should be fitted with a multiple level penstock which allows water to be released at desired temperatures.

3·14 The economic analysis for the Muddy Creek alternative should consider the benefit of a tailwater sportfishery. For example, the Town of Basalt estimates that the Fryingpan River fishery below Ruedi Reservoir annually adds one to three million dollars to the local economy. A tailwater fishery at Muddy Creek could, corresponding, be a real economic asset to the Town of Kremmling.

3·15 Stocking fish in a reservoir at Muddy Creek should be done annually and should be a cost of the project. Initial stocking paid for by the project would also be necessary in the tailwater area; however, this area may be capable of maintaining its own sportfish populations.

3·16 The vegetative treatments proposed for mitigation north and south of Wolford Mountain need to be repeated at five to seven year intervals for fertilizing and every 25 years for herbicides. Costs associated with the repetitive treatments need to be included in the mitigation plan. This work will require cooperation from the Bureau of Land Management in approving such treatments and in managing the timing of domestic grazing.

Recreational Use Projections

3·17 The recreational projection for both reservoirs appears extremely high. Based on creel census surveys, DOW's fisherman utilization projections for 1985 for reservoirs in the area are:

Bear Reservoir - 9,900 recreation hours
Granby Reservoir - 137,111 recreation hours
Green Mountain Reservoir - 69,675 recreation hours
Pearl Lake - 9,000 recreation hours
Ruedi Reservoir - 29,562 recreation hours
Steamboat Lake - 54,900 recreation hours
Williams Fork Reservoir - 48,817 recreation hours
Willow Creek Reservoir - 13,876 recreation hours
Yamcolo Reservoir - 13,600 recreation hours

- 2 -

Response

3·13 As discussed on page 2-31 of the SDEIS, a multiple-level penstock is planned for the Muddy Creek dam. The Department of Natural Resources should discuss the use of this penstock for managing the tailwater fishery with the River District.

3·14 There is little information on which to determine the quality of the tailwater fishery or estimate visitation to such a fishery. Whether the economic impact of this fishery would be significant would depend on its quality relative to the Blue River and other surrounding rivers and streams. This fishery could develop into an important recreational resource. See page 4-169 of the SDEIS.

3·15 Although not discussed in detail, an annual cost of $10,000 is planned for fish stocking at Muddy Creek Reservoir as part of the Muddy Creek mitigation plan. Stocking the tailwater area would be an enhancement measure and would not be required of the proponent. The cost of stocking the reservoirs was taken into account in the Benefit-Cost analysis (See Appendix B of the SDEIS).

3·16 This concern is discussed in Section 5.3.2 SDEIS and in the Muddy Creek Reservoir Mitigation Plan.

3·17 The total use from which the estimates were made was based on Colorado Division of Parks and Outdoor Recreation data for all visitation to selected State Park facilities; as such, the analysis included all recreation activity on these lakes, not just fishing. A complete description of the demand study is available in a technical supplement to the SDEIS.

Comment Letter 3

Even if one were to assume that half the recreational use of reservoirs is not related to fishing, these projections are well below the Rock Creek and Muddy Creek projections. High projections distort the recreational and economic values of the reservoirs and mislead the DEIS reviewer.

Specific Comments:

3-18 Page 3-76, Paragraph 1 - About 100 antelope occur in the Troublesome Pronghorn Unit. Small groups of less than ten antelope have been observed in the Muddy Creek project area.

3-19 Page 4-56, Alternative Site A - Approval of this project would be a form of mitigation because it would reduce impacts to the Rock Creek stream fishery and to wetlands. Additionally, it would provide for a better tailwater fishery. However, mitigation would still be necessary for fishery, wildlife and wetlands impacts, only not as much would be required as for Site B.

3-20 Page 4-62, 4.3.8.2, Mitigation Paragraph 4 and Pages 5-8 - We are concerned that the "Y" shape of the upper end of the reservoir may funnel migrating animals to the reservoir where they will either be forced to cross or turn around and go back out. This situation could increase the potential for drowning mortalities. This problem should be monitored; however, an adequate monitoring program would involve a considerable effort over a limited period of time annually for several years. The Division of Wildlife has not committed itself to such a program. Appropriate fencing is game-proof fencing; shorter fencing will not block big game animal movements.

Page 4-77, Paragraph 2 - While approximately only 2,000 fisherman days would be lost at Rock Creek, it is still 2,000 fishermen days more than what would be lost at Muddy Creek.

COLORADO GEOLOGICAL SURVEY

Site geology could significantly affect the economics or environmental impacts of building a dam at either Rock Creek or Muddy Creek; yet the DEIS treatment is superficial and no geologic maps or cross-sections are included.

3-21 Section 3.2.1.1 states that the Gore Pass fault "trends across the Little Rock Creek Valley about 100 yards downstream from the proposed dam site." The fault is indicated by Iwato's regional mapping, confirmed by CGS field examination, and referred to by the West report, but not shown on the Western Engineers geologic map or addressed in the MKE report.

Section 3.2.3.2 states "Drilling at Site A --- disclosed no conclusive evidence of faulting in the proposed dam foundation," and "The origin of lineaments in the Long Park area one mile west of the sites, however, could alter this opinion should they prove to be related to seismogenic surface faulting, a possibility that is yet to be proven." West and Associates, p. 56, suggests additional evaluation of the Long Valley lineaments. Was this done?

Response

3-18 We appreciate this clarification.

3-19 We appreciate your comment.

3-20 Details of the monitoring program would be developed in a detailed mitigation plan for Rock Creek if it were permitted by the Forest Service. The Colorado Division of Wildlife would be involved in the development of that plan. As noted in the SDEIS, Muddy Creek is the Preferred Alternative and a detailed mitigation plan has been prepared for that alternative.

3-21 Faulting in the foundation of the Rock Creek site has not been conclusively eliminated by studies summarized in the DEIS. Future sub-surface investigations in the design phase and excavation of the foundation in the construction phase may disclose faulting at the Rock Creek site. The presence of faulting, however, is not currently considered a "fatal" flaw. Many dams are built on faults with no adverse consequences. The possible presence of faulting in the dam foundation and its relationship, if any, to the Long Park lineaments are considered important design issues, however, and would be addressed by future studies. For a discussion of geotechnical design procedures see Supplementary Information to Section 3.2.2 in Chapter 2.0 FEIS.

A recommendation (Michael W. West & Associates, Inc., March 28, 1986) was made for further evaluation of the Long Park lineaments depending on the outcome of related engineering studies (i.e. selection of a preferred site and authorization to proceed with design studies). No further evaluation of the Long Park lineaments has been made. These studies would be performed during the design phase.

The three boreholes and single seismic line were part of feasibility studies and were not intended to represent conditions for final project design. Additional subsurface investigations would be required for characterization of foundation conditions and selection of appropriate foundation treatments.

Comment Letter 3

3-21 Three bore holes and one seismic line provided only sketchy information, particularly given the amount of jointing seen at the surface and the depth of fractures described in the holes. Pressure grouting sometimes can mitigate fractured rock problems but depending on depths and spacing required can be quite expensive.

3-22 Section 3.2.2.2, Site Geology Muddy Creek, mentions a landslide on the left abutment, but does not address the potential problem. What is the stability of that slide now and if the shale substrate becomes saturated?

3-23 What is the stability of the Pierre Shale on the reservoir side slopes with alternating saturation and draw-down from reservoir operation? The Pierre/Mancos in this area is notoriously unstable when saturated.

3-24 The jointing in the Pierre/Mancos contributes to serious leakage and stability problems in many reservoirs in this environment. The leakage test on the left abutment (MKE report) of 31 gpm may suggest serious problems. Jointing seems prevalent in the core holes. The problem should be addressed now and not as a remedial action after the dam is built.

3-25 In the sedimentation studies, was the near certainty of contributions from upstream mudflows or landslides considered? Were bank landslides caused by reservoir operation considered as part of the sediment storage problem? Normal annual sediment load could be far overshadowed by even one major mudflow in the upstream reaches.

DIVISION OF PARKS AND OUTDOOR RECREATION

3-26 The Colorado River has existing float boating uses that may be impacted by either reservoir. The impacts on floating opportunities have not been substantively addressed in the DEIS. Floating losses from each reservoir site, if any, need to be clearly identified.

Because many front range residents are attracted to Routt County for weekend camping and fishing experiences, the area is still in need of additional surface acres for flat water boating, camping, and fishing. Rock Creek would be similar to Steamboat Lake and Pearl Lake State Park where the two hundred (200) unit campground reaches full capacity on most weekends during the summer months. At the Muddy Creek site 12 miles or 49% of the shoreline is not suitable for recreation; whereas, at Rock Creek 3.5 miles or 18% of the shoreline is unsuitable for recreation.

Presently the Colorado Division of Parks manages Steamboat Lake, Pearl Lake and recently signed an agreement to manage Stagecoach State Recreation Area. All of these are located in Routt County. If a reservoir facility is constructed at either Rock Creek or Muddy Creek the Colorado Division of Parks would be interested in considering managing the area.

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Response

3-22 The questions concerning the nature of landsliding on the left abutment of the Muddy Creek dam site are important. The DEIS states: "The left abutment bedrock is overlain to the east a distance of 200 to 1000 feet from the canyon by landslide debris originating from high above on Wolford Mountain." Based on studies summarized in the DEIS, bedrock underlying the slide debris is inferred to be stable and capable of supporting the abutment and foundation of the proposed dam. The DEIS goes on to state that landslide debris is apparently derived from "slabbing and toppling of . . . crystalline rock above the Williams Fork Thrust Fault." This type of instability is not necessarily a significant hazard to the proposed dam. Landslide debris in the abutment area could be removed during construction and remedial measures can be employed to stabilize slopes above the dam. The nature of landsliding and its impact on design and construction, however, has not been fully addressed by studies summarized in the DEIS. Additional studies would be required during the design phase to assess the impact of landsliding on the left abutment of the Muddy Creek site.

3-23 The stability of reservoir slopes underlain by Pierre/Mancos Shale at the Muddy Creek site under fluctuating reservoir conditions is an important question. At the current level of study, stability of reservoir slopes is not believed to affect the feasibility of the Muddy Creek site. Additional studies would be required to more fully address this question and would be conducted if the proposed project is permitted. It should also be noted that with anticipated reservoir operations (Metro Denver lease) the reservoir drew down in many years would not be significant (See Section 4.4.3.3 SDEIS).

3-24 Pervasive jointing in the Pierre/Mancos Shale or any other type of bedrock in the foundation of a dam can contribute to leakage and stability problems. Water loss of 31 gpm in the left abutment and the apparent prevalence of jointing in core at Muddy Creek site are indicative of potential problems. The severity of these problems and their impact on design and construction have not been fully defined. A variety of foundation treatments are available to address jointing and leakage in dam foundations. The nature of jointing and related water losses would be defined during the design phase, if the project is permitted. Appropriate treatment would be incorporated in project design should jointing and foundation water losses prove to be significant problems.

Comment Letter 3

Response

3·25 These issues were not considered directly in the storage volume estimates. The USGS approach to estimating reservoir sedimentation rates (Ruddy 1986) is extremely conservative in assuming 100% trap efficiency and used a period of abnormally high runoff. This provides a margin of safety in the determination of required sediment storage volume and some allowance for events such as those referenced in the comment.

The sediment storage requirement was also estimated independently by Morrison-Knudsen Engineers in their feasibility report on Rock Creek/Muddy Creek. The MKE estimate was based on an average annual sediment production rate from the Muddy Creek watershed of 1.0 AF per square mile per year. This rate is considered conservative. For example, the SCS estimates that the sediment yield of the Rio Grande watershed contributing to Elephant Butte Reservoir is .78 AF per square mile per year. The US Bureau of Reclamation's Boysen Reservoir in Wyoming was also investigated for comparison. Boysen was considered to have reasonably comparable topography, soils, land use, etc. as the Muddy Creek Basin. The measured average annual sediment yield of the basin was .17 AF per square mile per year.

For the smaller reservoir analyzed in the DEIS, 6,000 AF was allocated to sediment storage. With the 60,000 AF reservoir analyzed in the SDEIS, reservoir operations do not lower the water storage volume below 10,000 AF. Again, there is an ample margin of safety for events such as those referenced in the comment. While bank landslides as a result of reservoir operations would consume storage volume, they also generally would increase the reservoir volume by some amount, i.e., they generally result in a displacement of material not a total consumption of reservoir volume.

3·26 The impact of each dam on floatboating was considered in more detail for the SDEIS (pages 3-106, 4-89, and 4-169 & 170). Because the impacts are negligible, no economic impacts were estimated.

Comment Letter 3

Response

DIVISION OF WATER RESOURCES

3·27 To better identify potential project impacts, the DEIS should list the water rights located between the two sites and those inundated by the proposed reservoirs. Some intervening rights may be affected by selecting the Rock Creek site.

3·28 Since further information on the joint-use reservoir and Green Mountain Exchange Projects is now available, section 1.5.3 should be updated. The Muddy Creek site would conflict with some of the proposed Green Mountain pump back alternatives.

NATURAL AREAS PROGRAM

The proposed Muddy Creek reservoir poses potentially significant impacts to occurrences of Osterhout's milkvetch, Astragalus osterhoutii, a plant species proposed for federal listing as threatened or endangered (Category 1). Most of the known occurrences, comprising the single largest population of the plant, are located within the proposed Muddy Creek reservoir impact area. Reservoir construction and operation constitute a significant potential impact to the species. Conservation of the species may require some or all of the following:

1) Shoreline fluctuation of as little as 10 feet could destroy many individual plants. Diking and fencing of occurrences of Astragalus osterhoutii are not sufficient protection of the species, since dikes may alter surface water flow with unknown consequences (e.g., snow retention may be greater behind dikes), and fencing will not affect water levels. Microclimatic effects of the fluctuating water line on Astragalus osterhoutii are also unknown.

3·29

2) Proposed access roads for the Muddy Creek site will dissect known populations of Astragalus osterhoutii on the south end of the reservoir. All roads and developed facilities should be designed to avoid occurrences of Astragalus osterhoutii.

3) Borrow and fill material sites should be chosen to avoid disturbing Astragalus osterhoutii occurrences. Several populations south of the proposed reservoir site are not shown on map 3-65 and borrow/fill areas should not affect these occurrences (see attached map).

4) Development of recreational facilities on the western edge of the reservoir could have substantial impacts on occurrences of Astragalus osterhoutii.

5) Off-site protection for special plant populations should occur on a 1:1 basis for populations lost to inundation or development.

- 5 -

3·27 The proponent has or has applied for the necessary conditional storage right on Muddy Creek to support the proposed reservoir. A complete water rights listing for either Rock or Muddy Creek can be obtained directly from the Colorado State Engineer and it was not considered necessary to add to the volume of the EIS by including such a listing. Intervening water rights on the Colorado River would not be effected if Rock Creek Reservoir were permitted.

3·28 Section 1.5.3 has been changed to reflect the completion of the Joint-use Reservoir study. The Muddy Creek "C" site in that study is similar to the preferred alternative of the SDEIS. The relationship of the proposed project and Site A on Muddy Creek is discussed in Section 2.2.2.3 SDEIS.

3·29 Impacts due to shoreline fluctuation, as well as your other concerns, are included in the impact assessment presented in Sections 4.4.6.2, 4.4.6.3 and 5.3.3 of the SDEIS. Due to your concerns, this assessment was presented in more detail in the SOEIS, as well as in the Biological Assessment, and the Muddy Creek Reservoir Mitigation Plan.

Comment Letter 3

3·30 The Kremmling Cretaceous Ammonite Locality Research Natural Area is located within one mile of the proposed Muddy Creek reservoir. Activities associated with reservoir construction and use could affect this valuable paleontological locality.

DEPARTMENT OF HIGHWAYS

3·31 SH 134 will be directly affected by the Rock Creek proposal and SH 40 by the Muddy Creek proposal. The Draft EIS should identify and quantify the amount of impact and length of highway affected by each reservoir proposal. The document needs to discuss how impacts will be mitigated, i.e., highway relocation, raising highway grades and elevations, bridging, etc., and state that plans prepared to reduce these impacts must be reviewed and approved by the Department of Highways prior to project final design and/or construction. It should be noted that costs for the mitigation of impacts to the state highway system will be paid for by the reservoir proponents. Additionally, all existing and new access points (intersections) with state highways that will provide access to the reservoir will have to be fully channelized (left and right turn lanes and acceleration and deceleration lanes) to maintain or improve the safety of these intersections in light of increased traffic volumes and turning movements at these locations.

COLORADO HISTORICAL SOCIETY

Specific comments related to the treatment of cultural resources in the DEIS follow:

3·32 Page vii, Cultural Resources, Mitigation column - Insert "effects to" after "mitigate." Change "catelogue" to "record."

Page viii, Cultural Resources, Mitigation column - Add "effects to" after "mitigate."

3·33 Page 1-16, Historic Preservation Office, Act or Regulation column - Omit "and Executive Order 11593, Section 2(b)." This has been incorporated into the revised 36 CFR 800.

3·34 Page 1-16, Historic Preservation Office, Requirement column - Substitute "regulations" for "Executive Order."

3·35 Page 4-71, 4.3.12.2. - The first sentence should be moved to 4.3.13.2. since it discusses a cultural resource issue rather than a recreation issue.

3·36 Page 4-72, second paragraph - It is not correct to state that moving the Rock Creek State Station will "save its historical value." Relocation may cause the property to become ineligible for the National Register of Historic Places, since its location and setting contribute to its historic significance. However, recordation and relocation would be preferred to recordation and

Response

3·30 The Natural Area is approximately four miles from the upper portion of the reservoir and would be more than five miles from any construction activity. Most of the construction would occur near the dam site, which is several miles away. Recreational use of the reservoir would be concentrated in the campground and dam area rather than at the upper end of the reservoir.

3·31 Impacts on State Highway 134 are identified in Section 2.4.2 SDEIS and are evaluated in Section 4.3.17. Impacts on U. S. Highway 40 are identified in Section 2.5.2 and evaluated in Section 4.4.17. If a project is permitted the proponent will proceed with final designs and comply with all Federal and State standards, permits, and review requirements. The proponent will bear the costs of all necessary modifications to the State highway system.

3·32 We appreciate your comments.

3·33 We appreciate your comments.

3·34 We appreciate your comments.

3·35 Section 4.3.12.2 addresses the recreational use of the Stage Stop rather than the cultural values.

3·36 We appreciate your clarification of this issue. The Stage Stop and its property would be evaluated during the site-specific survey of the area. Cultural resources are generally considered totally mitigated when mitigation is approved as proposed in Section 4.3.13.2.

Comment Letter 3

3·36 demolition or inundation. In addition, an historical archaeological survey of the property would be appropriate whether the building were to be moved or demolished. It is incorrect to assert that either alternative "would create no significant impact" since relocation, demolition or inundation would constitute significant adverse effects.

3·37 Page 4-72, 4.3.13.2. - There would be no need to reevaluate the Rock Creek State Station unless there were reason to believe that its National Register eligibility status had changed. Any eligible archaeological properties to be impacted by the undertaking would require some level of data recovery.

3·38 Page 4-72, 4.3.13.2. and Page 4-132, 4.413.2. and 3. Effects to cultural resources are not evaluated in terms of acceptable levels of impacts. Fewer historic properties may be affected by one alternative than another, or fewer may be adversely affected. Less adverse mitigation measures, i.e. relocation rather than demolition, or less extensive or costly mitigation measures may be possible under one alternative versus another.

Page 5-8, 5.2.6. - If it is decided to inundate rather than relocate the Rock Creek State Station, an historical archaeological survey and testing of the site along with HABS recordation would be appropriate. However, excavation would not be necessary unless the survey indicated the potential for subsurface archaeological resources.

Page 5-18, 5.3.5. - Mitigation measures might be similar to those proposed for the Rock Creek Alternative, but would be dependent on the nature and significance of the resources identified as a result of a survey.

WATER QUALITY CONTROL DIVISION

3·39 While the water-quality modelling done for the EIS is subject to uncertainty, the report indicates that eutrophication is more likely to occur in Muddy Creek Reservoir. Prediction of specific levels of water quality parameters for comparison with water quality standards should be included in the EIS analysis.

7483

Response

3·37 Due to recent changes in the structure due to human actions, the eligibility status of the Stage Stop may have changed, and hence should be reviewed.

3·38 It is possible that with further survey, that differences between the two sites may become apparent. Based on the existing information, both sites appear to be very similar with respect to potential cultural resource values. The proposed mitigation would determine the appropriate measures for all historical properties.

3·39 More detailed water quality modeling of the proposed reservoir is being conducted by the U. S. Geological Survey under contract to the project proponent. When results are available, predicted loadings will be compared with standards at Muddy Creek. A multi-level outlet tower is an integral part of the proposed project (See Section 2.5.1 SDEIS) and would provide flexibility in reservoir operation and allow some control of temperature and water quality parameters in the reservoir and downstream tail water.

Comment Letter 4

TILMAN M. BISHOP
State Senator
2697 C Road
Grand Junction, Colorado
81506
Capitol: 866-4866

Senate Chamber
State of Colorado
Denver

COMMITTEES:
Chairman of:
Agriculture, Natural and Energy
Vice Chairman of:
Legislative Audit
Member of:
Appropriations
Local Government
Colorado Tourism

October 9, 1987

Mr. Jarry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. Highway 40
Suite 20
Steamboat Springs, Colorado 80487

Dear Mr. Schmidt:

I am writing this letter to request that the Forest Service issue a permit for the construction of a reservoir on Rock Creek. During the past month I have had the opportunity to review the above referenced EIS and to visit both sites in the field with representatives of the Forest Service, the Colorado River Water Conservancy District, Grand and Routt County Commissioners, and representatives of the environmental community. I have long been associated with water resources issues on the Western Slope and throughout the State of Colorado, and with the need to develop adequate water supplies, to meet both present and future water demands and to apply Colorado's compact-allocated waters to beneficial use.

4·1 In my opinion, the Rock Creek Dam and Reservoir is far better suited to meet the present and future purpose and need of the project and the public interest will be better served with construction of a facility at Rock Creek than the alternative. Rock Creek will provide an immediate water provide for Western Slope users and an interim supply for the metro Denver region as well as supply a much higher quality recreational opportunity.

During the just concluded legislative session, there was extensive debate concerning the ultimate passage of legislation identified as House Bill 1158 which provides for mitigation funds to be used in association with water process development. During committee testimony in both House and Senate, the facility at Rock Creek was identified as the possible first facility which utilized mitigation funds provided for in House Bill 1158.

Response

4·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 4

4·2 Identifying Rock Creek as the preferred alternative and permitting construction at the Rock Creek site will be the Forest Service action which most effectively meet the criteria set forth in the National Environmental Policy Act and the alternative which best serves the public interest.

Your favorable consideration of selecting the Rock Creek Dam and Reservoir site will be very much appreciated, not only by me but by most people and organizations who are interested in and concerned about seeing that adequate water is available to the citizens of the state of Colorado.

Sincerely,

Tilman M. Bishop

TMB:jb

Response

4·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 5

...erry Street • Denver, Colorado 80222 • 303/320-5800

October 14, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40, Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

Subject: Rock Creek/Muddy Creek
Environmental Impact Statement

5·1 This is to request that you include in the official record of hearings on the Environmental Impact Statement this letter requesting that the Forest Service issue a permit for the construction of a reservoir by the Colorado River Water Conservation District on Rock Creek. In addition to being a Denver area resident and a State Senator representing portions of Arapahoe and Denver Counties, I am a cattle rancher and property owner in the vicinity of McCoy and Yampa, and I am therefore thoroughly familiar with Rock Creek, Muddy Creek and the proposed mitigation lands with representatives of the Forest Service, the Colorado Water Conservation Board and County Commissioners from Grand and Routt counties. Also on the tour were board members of the Northern Colorado Water Conservation District, the Water Resources and Power Development Authority, the Denver Water Board and the Colorado Water Conservation Board. During that tour it was reconfirmed and became obvious that Rock Creek is by far the best reservoir site, both environmentally and from a recreational point of view. It would also be the much better economic asset of the two alternatives. Further, I came to appreciate just why Grand County and the Middle Park Water Conservancy District wants to preserve Muddy Creek for a large reservoir; it is the best reservoir site high in the basin and nay-sayers to the contrary, the construction of a small Muddy Creek at this time will very probably preclude the development of a large reservoir on Muddy Creek in the future. The State of Colorado as a whole and the Western Slope in particular needs to have the ability to build a large (as I understand it approximately 120,000 acre feet) reservoir on Muddy Creek.

Response

5·1 Thank you for your comment. It was considered in the selection of the prefarred alternative.

Comment Letter 5

5·2 The Environmental Impact Statement reviews to some extent the history of how agreement was reached on both sides of the Continental Divide for construction of a reservoir which will benefit both the Western Slope and the Denver metropolitan area. Previously agreements had been consummated which would benefit the Western Slope and Northern Colorado. The construction of a Western Slope reservoir will provide an immediately available water supply for the Western Slope as well as an interim supply for the Denver metropolitan area. The Denver Water Board, Northern Colorado Water Conservancy District-Municipal Subdistrict, Colorado Water Conservation District, Colorado River District and Grand County Commissioners and the Board of the Middle Park Water Conservation District have all expressed a preference for Rock Creek. After the field tour I now better understand why they have expressed that preference. It will provide a very attractive and environmentally sound recreational facility and total recreation days in all categories but especially fishing will be greatly enhanced. Additional stream fishing will be provided at Egeria Creek, but just as important, stream fishing below the reservoir will probably be improved (of 13 Gold Medal Waters in the State of Colorado, 8 are influenced or enhanced by upstream reservoirs).

Employment in the Southern Routt County will be greatly enhanced if the Rock Creek Reservoir goes forward.

I therefore urge you to issue a construction permit for Rock Creek. It best serves the public interest, including the public interest as set forth in the National Environmental Policy Act. It is a sound decision environmentally and to provide for the future of Western Colorado.

Sincerely,

Paul W. Powers

PWP/jsw

cc: The Honorable Ben Nighthorse Campbell
The Honorable William Armstrong
The Honorable Hank Brown

Response

5·2 Thank you for your comment. It was considered in the selection of the prefarred alternative.

Comment Letter 6

GRAND COUNTY BOARD OF COMMISSIONERS

RICHARD "DICK" LEONARD
District I, Fraser 80442
W.A. (BILL) NEEDHAM
District II, Granby 80446
PAUL J. OHRN
District III, Bremmling 80436

COURT HOUSE, HOT SULPHUR SPRINGS, COLORADO 80451
PHONE: 303-725-3376
303-725-3347

R. HOWARD MOODY
County Manager

November 3, 1987

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, CO 80487

RE: Rock Creek/Muddy Creek (DEIS)

Dear Mr. Schmidt:

The Grand County Board of County Commissioners has reviewed the DEIS and provided for input from local agencies and the general public. We appreciate the coordination and efforts provided by you and your staff and the openess exhibited with the process. The adverse impacts caused by the Windy Gap Project are primarily experienced in Grand County and therefore the project selected must primarily benefit Grand County. From our review and input provided to us, it is evident that some local adverse impacts have not been identified or thoroughly discussed. Basically, the DEIS adequately addresses some of the environmental impacts of the sites identified.

However, certain assumptions have been made in the study which are misleading and would lead the reader to conclude that the negative impacts are minimal after construction and operation of either reservoir. One model provided (Table 4.3.3.3) points out that diversions are assumed to be at the maximum allowable legal capacity. Therefore, by comparing the simulated baseline flows with the project flows an unrealistic change is noted in lines 4 and 5. The real change in actual flows would reflect a comparision of columns 1 and 3.

Therefore, based upon "models" and other assumptions the DEIS concludes that adverse effects are minimal on many variables. It becomes obvious that the operation of Rock Creek may have an unacceptable adverse impact on Grand County for an indeterminate period of years. Also, the operation of Muddy Creek Reservoir may have an adverse impact on Grand County above Kremmling for an indeterminate period of years.

Response

Comment Letter 6

6·1 The EIS must show realistic impacts in Grand County. The proposed projects must identify and quantify adverse and beneficial impacts on minimum stream flows and water quality, white water rafting, fishing leases, irrigation and municipal water and sewer systems.

The Board of Commissioners expressed reservations early in the process that all alternative projects were not being considered. Currently, the Colorado Water Resources and Power Development Authority is conducting a study in the Fraser River Valley to determine the feasibility of a reservoir project or series of projects. This study when completed in 1988 may indicate that suitable reservoir sites are available in the Fraser Valley which would alleviate water shortage problems in Grand County. We hope that site selection and construction of beneficial reservoirs in the Fraser Valley be expedited.

We recognize that the Rock Creek Reservoir could be constructed in the future to assist the water needs of the entire River District. However, in view of the fact that Muddy Creek is in Grand County and is heavily supported by Grand County residents and that a Muddy Creek Reservoir more closely meets the requirements of the Windy Gap Agreement, the Grand County Board of Commissioners prefer the Muddy Creek site.

6·2 Therefore, the Grand County Board of Commissioners request that its position statement in support of Rock Creek Reservoir be removed from the EIS. Grand County supports the selection of a reservoir and associated facilities on Muddy Creek.

Please consider our comments in your decision process.

Sincerely,

Richard A. Leonard

Richard A. Leonard
Chairman

Response

6·1 The SDEIS does realistically show potential impacts in Grand County. Flow changes on Muddy Creek, the Colorado River at Kremmling, and the Blue River below Green Mountain Reservoir are quantified in the document for the preferred alternative (See SDEIS Sections 4.4.3.2 and 4.4.3.4 as well as Appendix A). Potential impacts on water quality are discussed in Section 4.4.3.5 and adverse and beneficial effects to white water rafting are presented in Section 4.4.12.1 (SDEIS). Adverse impacts on fishing leases, irrigation, and municipal water and sewer systems are not expected.

6·2 This statement has been deleted from the SDEIS.

Comment Letter 7

ROUTT COUNTY BOARD OF COUNTY COMMISSIONERS

Box 773598 · Steamboat Springs · Colorado 80477 · 303/879-0108

HAND DELIVERED

October 23, 1987

Robert A. Dorr
District 1
Oak Creek

Paul A. Kenney
District 2
Hayden

L. Dennis Fisher
District 3
Steamboat Springs

John Vanderhoeven
County Attorney
Box 773998
879-0108

Kim Stevens
Clerk of the Board
Box 773998
879-1710

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West US 40
Suite 20
Steamboat Springs, Co. 80477

RE: Rock Creek Reservoir Project

Dear Mr. Schmidt:

After attending your meetings relative to the Rock Creek Reservoir Project, the Board of County Commissioners for Routt County is very much in favor of the Rock Creek project as the preferred site as opposed to the Muddy Creek site. We favor Rock Creek based on all the information that has been provided to this point and feel that the project is beneficial to Routt County. However, we do feel that the Wolford Mountain project in Grand County could be another beneficial project down the line if it is determined to be environmentally sound.

7·1 The concerns of the Routt County citizens on the 2100 acre wetlands mitigation plan along Egeria Creek needs to be addressed more specifically. Routt County has conducted a fact gathering mission in an attempt to address this concern. According to Mr. James Leary the Routt County Assessor, the amount of property taxes lost by this program would be minimal or at best a break even proposition, although we would need more specific legal descriptions to be certain.

However, if an assumption were made that all the mitigation land were class II grazing, the assessed valuation would be 2100 x $4.40/acre = $9,240.00. Multiply that figure by the Mill Levy of .072251 and the result is $667.50 per year in taxes paid to the County and all Special Districts. If there any improvements on the property, the formula and figure will change.

Response

7·1 Due to the relatively small amount of taxes and fees that would change due to the plan, the economy of the county would not be significantly effected as you have concluded. Therefore, these figures were not included in the DEIS.

Comment Letter 7

According to the latest preliminary estimates by the Routt National Forest, Routt County and all Special Districts will receive between $3,750.00 and $4,250.00 in anticipated Forest Service fees. Along with these fees, the spin-off of related sales and services in South Routt County could provide additional jobs and services in the near future.

7·2 In summary, the Board of County Commissioners would definitely support the Rock Creek project which will ultimately stimulate the over-all economy in South Routt County and Grand County.

We thank you in advance for the opportunity to comment on the Rock Creek project and we look forward to working with you in the future.

Sincerely,

ROUTT COUNTY BOARD OF COMMISSIONERS

Paul A. Kenney Robert A. Dorr L. Dennis Fisher

cc: Mr. David H. Merritt
Mr. Wesley Signs

Response

7·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 8

ROUTT COUNTY BOARD OF COUNTY COMMISSIONERS
Box 773598 · Steamboat Springs · Colorado 80477 · 303/879-0108

October 5, 1987

Robert A. Dorn
District 1
Oak Creek

Paul A. Romany
District 2
Hayden

L. Dennis Fisher
District 3
Steamboat Springs

John Vanderbloemen
County Attorney
Box 773998
879-0100

Wes Sommer
Clerk of the Board
Box 773998
879-1710

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West US 40
Suite 20
Steamboat Springs, Co. 80477

RE: Rock Creek Reservoir Project

Dear Jerry:

Attached please find a copy of the position statement agreed upon by the Routt County Board of County Commissioners. The Board is very supportive of this project and will continue to support its location along with the Colorado Water Conservation District.

Thank you for this opportunity to respond in support of this valued project.

Sincerely,

David Yamada
County Administrator

cc: Mr. David H. Merritt
Mr. Wes Signs

Response

Comment Letter 8

ROUTT COUNTY POSITION STATEMENT
ROCK CREEK RESERVOIR

Routt County feels it is important to express our views regarding the proposed Rock Creek Reservoir Project. The continued decline of coal mining and agriculture has depressed the economy in Routt County. As a result, Routt County's economy greatly depends on recreation and tourism. The County has become a major participant in assisting private industry and other public agencies in encouraging economic development. Water based recreation is important for the county's economy with existing lakes and reservoirs such as Steamboat Lake, Pearl Lake, Hahn's Peak Lake, Lake Catamount, Elk Head Reservoir and the recent development of Stagecoach Reservoir.

8·1 We in Routt county encourage and support continued projects such as the proposed Rock Creek Reservoir which store the waters in our County and other headwater counties by developing well-planned and environmentally sound reservoirs which also encourage water recreation beneficial to their economy.

Thank you for this opportunity to state our position for the record.

Response

8·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 9

TO: Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest

SUMMARY TESTIMONY OF ED POKORNEY,
COORDINATOR, INTERGOVERNMENTAL AFFAIRS
DENVER WATER DEPARTMENT

Rock Creek/Muddy Creek Reservoir Draft EIS
Public Hearing
Denver Botanic Garden
October 6, 1987

The Colorado River Water Conservation District has selected a superior site on Rock Creek as its preferred alternative for a proposed reservoir. The District's choice and the arrangement which the District has reached with the Denver Board of Water Commissioners for the use of water from the reservoir are the result of years of difficult negotiations. A look at this effort shows the care with which this proposed project has been approached.

In 1981, Governor Richard Lamm formed the Metropolitan Water Roundtable to evaluate the long-term water needs of the Denver Metropolitan Area. The Roundtable was made up of representatives of varying interests throughout Colorado, including the Colorado River District. Through discussions attendant to the Roundtable, a preliminary agreement was reached in April 1983 in which Metro Denver and the River District would jointly pursue development of a Western Slope reservoir. This initial effort finally reached fruition in December 1986 when the River District, Denver, and Northern Colorado approved an historic agreement to eliminate many of the differences which divided them. A major element of that agreement was a lease/financing arrangement for Metro Denver use of water from either a Rock Creek or Muddy Creek Reservoir.

While the critics of the water community often point to what they perceive as that community's lack of imagination and inventiveness, the Denver/Colorado River District lease agreement shows ample quantities of both. Critics frequently extoll the virtues of efficient use of water, exchanges, leases, reasonably small water projects, and cooperation among water entities. Rock Creek meets all of these criteria. As such, it is a major tangible step in a new era of water relations between Eastern and Western Colorado.

9·1 For those concerned that Rock Creek's adverse impacts will not be properly mitigated, Rock Creek has another distinction. The proposed project may be the first water project to go through the State of Colorado's new mitigation process. That process, which was established by state legislation in mid-1987, brings order and careful examination among state agencies to bear on the proper mitigation of a project's adverse impacts.

Response

9·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 10

TO: Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest

SUMMARY TESTIMONY OF MR. KEN MITCHELL,
DIRECTOR OF PLANNING
DENVER WATER DEPARTMENT

Rock Creek/Muddy Creek Draft EIS
Public Hearing
Denver Botanic Gardens
October 6, 1987

10·1 Based on hydrologic and other considerations, Rock Creek is preferable to Muddy Creek as a reservoir site. The larger Muddy Creek would still remain a potential future site which could be used in connection with plans centered on a possible Green Mountain Reservoir Pumpback project. At this time, there are very few low impact large reservoir sites available.

An important issue in the consideration of Rock Creek as a reservoir site is the question of the recreation which now takes place at the location, and which would be lost through inundation. The fact is that Rock Creek cannot now support heavy recreational utilization. I have fished Rock Creek, and there is no question it is a high quality fishery. However, it can remain a high quality fishery only if utilization is kept quite low.

The Draft EIS indicates that Rock Creek annually has some 2,000 recreation visitor days (RVDs) for stream fishing. Here as many as 8-10 persons daily to fish the portion of stream to be inundated by the Rock Creek Reservoir, the stream fishing experience would be of quite low quality. Rock Creek is far too small and too fragile a stream to withstand strong fishing pressure. From that standpoint, reservoir recreation at the Rock Creek site has much more to offer.

10·2

K. L. Mitchell

Response

10·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

10·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 11

City of Grand Junction
8
250 North

Novembar 6, 1987

Gary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 W. 8th Avenue
Lakewood, Colorado 80225

NOV
Rece
Rocky Mo
Fores

Re: Rock Creek/Muddy Creek
Draft Environmental Impact Statement
United States Forest Service
August 1987

Dear Sir:

The purpose of this letter is to offer comments on the above-referenced Draft Environmental Impact Statement(DEIS) for the City of Grand Junction, Colorado.

The City of Grand Junction holds decrees on the Colorado River and is supplied by other providers that hold decrees on the Colorado River.By its position as the largest metropolitan area in the Upper Colorado River Basin,the City and its agricultural neighbors take an increasing interest in the activities effecting the Grand Valley's water supply.

Specific comments on the project involve three areas: water quantity, water quality and institutional issues.

Senate Document 80:"Plan of Development and Cost Estimate for the Colorado- Big Thompson Project", prepared by the Bureau Of Reclamation in June 1937, describes the purposes of Green Mountain Reservoir, the uses of Green Mountain water, and how releases are to be administered for the benefit of the irrigation and domestic users on the Colorado River. The DEIS adequately describes the quantities of water to be exchanged with Denver and the location of the impact.However, how the exchange would be implemented with regards to the provisions of Senate Document 80, the Green Mountain operating policies, State/Federal decrees,and provisions placed on Denver when Dillon Reservoir was constructed to insure water to Green Mountain were not addressed in sufficient detail in the Draft. Since the purpose of Rock Creek or Muddy Creek will be to allow Denver to affect an exchange of its obligations to Green Mountain Reservoir for an obligation to Rock Creek/Muddy Creek,it is important that the mechanics of this exchange and institutional agreements and decrees be described and modified prior to construction.

11·1

Response

11·1 The SDEIS has been expanded to better evaluate the potential impacts of the exchange (substitution) referenced in your comment (See Sections 1.1 and 4.3.3.4 SDEIS. See also Response to Comment 48-5).

Comment Letter 11

The River District/Denver Memorandum of Agreement and the Rock Creek Reservoir Lease address these concerns by describing goals to be reached.However, the City would request that a specific plan for changing existing institutional arrangements be provided and that substantial agreement by all parties be documented.

11·2

The provisions for the use of Green Mountain Reservoir, as outlined in Senate Document 80, have been a part of the operating criteria of the River for fifty years. Other decrees and decisions have further refined the requirements for water usage on the Colorado River system since that time. The Colorado River Water Conservation District, itself, has represented the interests of western slope water users since 1937 and has fought tirelessly to insure that agreements and protections are insured. To ask that institutional changes be in place prior to construction follows on previously established policy.

In its summary report on JOINT -USE RESERVOIR AND GREEN MOUNTAIN EXCHANGE PROJECTS issued in April 1987, the Colorado Water Resources and Power Development Authority indicated that " the development schedule for each of the alternatives addressed ...would require...a definition of institutional arrangements for project implementation" and that " institutional constraints" could substantially increase the time required to develop exchange alternatives.

Failure of the River District,the Bureau of Reclamation, water users on the Colorado and its tributaries,and Congress to reach agreement that would put into effect the exchange agreements could jeopardize the construction of Rock Creek/Muddy Creek since the financing is dependent upon Denver lease payments for bond repayment.

In addition and for the record,because of its decrees on the Colorado River, the City holds the position that whenever the flow above the Highline Diversion Dam drops below that required to satisfy all active Grand Valley decrees(approximately 2250 cfs), upstream junior water rights be curtailed or releases made from Green Mountain.There has been some contention made in the past that administration of the River not commence until the flow is reduced to 1650 cfs and the Orchard Mesa Irrigation District has put its "check" into use. This "check" is strictly an agreement between the Orchard Mesa Irrigation District, the United States, and the Grand Valley Water Users Association and should not be construed as an operating criteria of the River. The DEIS or subsequent letter from the Forest Service should address this issue and specifically state that the provisions of the "check" were not included in the hydrology studies.We provide this comment in support of previously indicated concerns of the Orchard Mesa Irrigation District.

11·3

Response

11·2 There would be no need to change existing institutional arrangements since those arrangements provide for the type of substitution being contemplated (See Response to Comment 11-1 and 21-10).

11·3 The "check" is not considered in the operation of the proposed reservoir or related hydrology studies. The issue of the check is considered a separate issue between the Colorado State Engineer and the Orchard Mesa Irrigation District.

Comment Letter 11

Water quality from Rock Creek or Muddy Creek should be the same as that which is presently delivered from Green Mountain.Comparative studies showing quality from Rock Creek/Muddy Creek as compared to Green Mountain or Williams Fork is limited the DEIS. The Draft indicates that for both Rock Creek and Muddy Creek " water quality changes downstream and in the reservoir need to be better determined before specific mitigation can be proposed".The DEIS continues: "additional water quality monitoring and temperature and sedimentation modeling...would better quantify the potential water quality and sedimentation changes". The impacts of the changes in water quality and mitigation are of interest to the Grand Valley for two reasons: 1. Because of existing programs to clean up water for domestic and agricultural use and 2. Because of existing use restrictions on decrees for the purposes of maintaining water quality . The unanswered questions indicated in the DEIS concerning water quality, as stated above, could affect negotiations in making the required institutional changes to effect the proposed water exchanges. Water quality issues, we feel, should be more adequately described and reflect mitigative proposals.

11·4

In summary, we appreciate this opportunity to address the information in the DEIS. We do not oppose the projects proposed by the Colorado River Water Conservation District. Because of the unanswered questions of water quality, the City would prefer a Rock Creek site over a Muddy Creek site.We do feel that the institutional issues and our involvement in institutional changes are a legitimate issue for an Environmental Impact Statement and must be addressed in the Statement or addendum thereto.

These comments have been developed with input from Mesa County,agricultural interests in the Grand Valley, the Grand Valley Water Users Association, Orchard Mesa Irrigation District, and the Mesa County Water Users Association.Subsequent hearings or meetings on the Final EIS or proposed mitigation plans should include scheduled meetings in the Grand Junction area.

11·5

Sincerely,

Greg Trainor

Greg Trainor
Utility Manager

cc: See Attached

Response

11·4 The water quality discussion has been expanded in the SDEIS. The issues of salt loading from Muddy Creek Reservoir and potential downstream salinity impacts are evaluated in Section 4.4.3.5 SDEIS. As disclosed, there will be a change in salinity, but it will be very small. The Colorado River Salinity Control Program was established to permit development to continue in the basin without impacting lower basin water users or requiring project-specific mitigation. See "1987 Review - Water Quality Standards for Salinity - Colorado River System" prepared by Colorado River Basin Salinity Control Forum. This report contains the implementation plan for the salinity control program, and was adopted by each of the 7 basin states as the requirement for triennial review of water quality standards for compliance with Section 303 of the Clean Water Act of 1977.

11·5 A public hearing on the SDEIS was held in Grand Junction on October 6, 1988.

Comment Letter 12

COLORADO RIVER WATER CONSERVATION DISTRICT

November 4, 1987

Mr. Jerry Schmidt
U.S. Forest Service
Routt National Forest
29587 West Hwy. 40
Suite 20
Steamboat Springs, CO 80487

SUBJECT: Rock Creek/Muddy Creek Reservoir
Draft Environmental Impact Statement
August 1987

Dear Mr. Schmidt:

The Colorado River Water Conservation District (River District) as applicant for the Rock Creek Reservoir submits the following general comments on the Rock Creek/Muddy Creek Draft Environmental Impact Statement (DEIS).

1. The DEIS is well written and organized. The document provides a clear description of the impacts of the proposed project. The River District believes that with the DEIS and an evaluation of public and agency comments to the DEIS, the Forest Service and BLM are in a position to make a preferred action recommendation.

2. The DEIS displays as the primary alternative to Rock Creek Reservoir, a reservoir at Muddy Creek sized at approximately 47,000 acre feet of capacity.

It is possible, however, that if the Forest Service determines the Muddy Creek site to be the preferred alternative a reservoir slightly larger than the one analyzed in the DEIS would be optimum. This slightly larger reservoir at the same site would have impacts very similar to those described in the DEIS. The River District understands that if the Muddy Creek Reservoir is eventually selected as the preferred alternative, some updated technical information on the larger reservoir would be required..

12·1

SUITE #204 • MID-CONTINENT BUILDING
303/945-8522 / P.O. BOX 11, GLENWOOD SPRINGS, COLORADO 81602

Response

12·1 The SDEIS discloses potential impacts of a 60,000 AF reservoir on Muddy Creek. Additional technical information on the proposed project is presented in Section 2.5 SDEIS.

Comment Letter 12

3. The River District believes that while the DEIS provides an overview of the complex history, purpose and need of the proposed reservoir, the DEIS does not, and no single document can, fully describe with sufficient detail the history of this project.

The reservoir project the River District has proposed is the result of nearly two decades of negotiations, evaluation of needs, legal actions, and public involvement. We wish to point out that the construction of reservoir storage on the West Slope as a part of the Windy Gap project was a permit condition for the Windy Gap project that the Federal agencies, including the Bureau of Reclamation, Corps of Engineers, and EPA fully understood when the appropriate permits were issued.

It should also be noted that the interim use of the proposed reservoir by Denver under the lease agreement is, in part, a product of the Governors Metropolitan Water Roundtable process. The Roundtable process was specifically designed to facilitate consensus solutions to complex water issues. Representatives of the West Slope, Front Range, environmental community, and local, state, and Federal governments all contributed to the Roundtable process.

12-2 4. The River District is aware of some comments and claims that the Denver-Public Service Company of Colorado "agreement" for the subordination of the Shoshone Power Plant should be considered a no-Federal action alternative to the proposed reservoirs.

The River District would like to point out to the Forest Service our concerns with these claims. First, no one knows if the "agreement" is either legally or administrably enforceable. The "agreement" provides that no other water rights can be injured. The State Engineer's office has questioned how the "agreement" could be administered and, to our knowledge, no action has been taken to adjudicate the "agreement". Until it is clear the "agreement" is enforceable or administrable, it is speculation to assume that additional water could be available to Williams Fork Reservoir under the "agreement", and it is not appropriate that it be considered as a "no action" alternative.

Response

12-2 The Denver-Public Service Company Shoshone Agreement is evaluated in the SDEIS as a non-structural alternative eliminated from detailed study (See Section 2.2.3.2 SDEIS).

Comment Letter 12

Further, the subordination "agreement" does not satisfy the intent of the Windy Gap settlement to provide compensation to the West Slope for the impacts of Windy Gap. The "agreement" between Denver and Public Service Company terminates when the City of Denver electric service franchise terminates. If any benefits were available to the West Slope under the "agreement" (the River District is not aware of any benefits) the benefits would only be temporary.

Finally, one of the major objectives of the River District-Denver lease is to provide the River District and West Slope with the resources to address specific water resources and supply problems on the West Slope, such as enhancing stream flows in the Fraser Basin. The lease provides the River District with the money and water as resources to solve problems such as those in the Fraser Basin. The subordination agreement does neither.

Thank you for the opportunity to comment.

Sincerely yours,

THEODORE L. BROOKS
Acting President

ROLAND C. FISCHER
Secretary-Engineer

Response

Comment Letter 13

GRAND COUNTY
WATER and SANITATION DISTRICT NO. 1
P.O. BOX 3977
WINTER PARK, COLORADO 80482
(303) 726-5143

October 7, 1987

Mr. Jerry E. Schmidt,
Forest Supervisor
Routt National Forest
29587 W. U.S. 40, Suite 20
Steamboat Springs, Co. 80487

RE: Rock Creek/Muddy Creek
Environmental Impact Statement

Dear Mr. Schmidt,

13·1 Grand County Water and Sanitation District Board wishes to go on record supporting the construction of a dam and reservoir. This facility will have the multiple purpose of providing storage for the future growth in Western Colorado, meeting a near-term water supply shortage in metropolitan Denver, creating an income source for Western Colorado to solve the water supply problems, and creating a first class recreational facility.

We have purchased 250 A.F. of Windy Gap water which is beneficial to us. A project would firm up our Windy Gap water. When Granby spills our Windy Gap water in a wet year, our water could be made up out of Rock Creek or Muddy Creek.

There are few opportunities in which the Forest Service can benefit, plus meet the needs of many by approving this single action.

Sincerely,

Dennis L. Ducommun

Dennis L. Ducommun

DLD/pjm

Response

13·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 14

Mesa County Water Association
P.O. Box 572 Fruita, Colorado 81521

November 9, 1987

Jerry Schmidt, Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, Colorado 80487

Dear Mr. Schmidt:

Thank you for this opportunity to respond to the U.S.D.A. Forest Service's Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir, Routt and Grand Counties and for your consideration in extending the written comment period to November 9, 1987. Also, thank you and thanks to your personnel for their quick response to my request for additional copies of this Draft E.I.S.

There are four areas of concern on which I wish to comment and on which I wish to raise questions:

1) Priority date of Green Mountain Reservoir vs. the priority dates of the proposed Rock Creek/Muddy Creek Reservoirs.

2) Flow reduction in the Blue River from Dillon Reservoir to the Colorado River and in the Colorado River from the Blue River to Kremmling, Colorado (Muddy Creek) and McCoy, Colorado (Rock Creek).

3) Changes in water quality.

4) Economic impacts.

(1) PRIORITY

1.5.3 page 1-12 Joint Use Reservoirs and Green Mountain Exchange Projects all paragraphs.

14·1 What arrangements are provided for water release from Green Mountain Reservoir if there is a compact call on the Colorado River?

How will such a call be administered and by whom?

Response

14·1 Questions regarding administration of a compact call on the Colorado River can only be answered by the Colorado State Engineer. Administration of water rights in Colorado is a function of the State Engineer not the Federal Agencies involved in the preparation of this document. This issue has not been considered in the hydrologic modeling presented in the DEIS or SDEIS.

Comment Letter 14

14-1 Could demand by the Eastern Slope be difficult to curtail even under a signed agreement?

Has hydrologic modeling of the river basin been accomplished to determine the reality of such a call?

(2) FLOW REDUCTIONS

2.2.2.7 page 2-5 Projects Upstream of Kremmling on the Blue and Colorado Rivers paragraphs 6-8.

When senior rights downstream necessitate a call on the river under the proposed project, the call would be answered by a water release from Rock Creek/Muddy Creek Reservoir not the upstream Green Mountain Reservoir.

14-2 What recourse would water users on the Blue and Colorado Rivers upstream at McCoy or Kremmling have to maintain their suitable stream flows for irrigating, recreational, and commercial purposes?

(3) WATER QUALITY

The suitability of a dam on Muddy Creek is questionable. Muddy Creek flows through geologic formations containing soluble calcium and sulfate and its stream water quality is an exception to the good overall surface water quality found in the Colorado River Basin. This important detrimental feature of Muddy Creek is noted in numerous instances in this D.E.I.S.:

3.2.2.2	page 3-3	paragraph 1
3.3.2	page 3-13	paragraph 1
3.3.2.2	page 3-16	paragraph 3
3.4.3.2	page 3-44	paragraph 3
	page 3-46	paragraph 4
3.4.3.3	page 3-46	paragraph 6

A question from this last reference: What is the specific conductance or T.D.S. (Total Dissolved Salts) of the stream water at the Troublesome Creek gauge?

The local geology and soils give Muddy Creek its existing chemical character. It is a calcium sulfate type water. The state sulfur standard of 230 mg/L was exceeded in 6 out of 13 water quality samples. The six excesses were: 280 mg/L, (2) x 400 mg/L, (2) x 410 mg/L, and 430 mg/L[1].

[1]U.S.G.S. Water Resources Data Colorado Water, 1986, page 96.

Response

14-2 Only a substitution of water between the proposed reservoir and Green Mountain is being contemplated (See Section 2.4.7). If any senior rights were injured, recourse would be through the State of Colorado water rights system.

Comment Letter 14

Specific conductance ranged from 245 to 1150 microSiems/cm with 10 of the 13 readings over 700 microSiems/cm[2]. These numbers indicate a range of T.D.S. from 184 mg/L to 663 mg/L[3]. This is the chemical nature of the water flowing in Muddy Creek and into the Colorado River at Kremmling.

Build a dam and new situations are created.

"Among the processes that affect the chemical and physical properties of water impounded are:

1) the relationship among inflow, outflow, and storage in the reservoir,

2) the leaching of minerals from rocks and soils inundated,

3) the precipitation of minerals from water of the reservoir,

4) the annual limnological cycle, and

5) the concentration of minerals due to evaporation."[4]

For example: Tiny Highline Lake in Western Mesa County contributes 24,000 T of salt by leaching to the annual salt load of the Colorado River[5].

14-3 What is the anticipated increase of T.D.S. due to leaching of minerals from rocks and soils when inundated?

What is the anticipated volume loss through evaporation of water?

What is the anticipated increase of mineral concentration due to this loss?

"One of the effects of storing water in the reservoir is that the concentration of dissolved solids, and hence the

[2]Ibid. page 96.

[3]Multiply microSiems/cm by 0.75 to obtain approximate T.D.S.

[4]U.S.G.S. W.S.P. 2056 page 29 Flaming Gorge.

[5]Colorado River Basin Salinity Control Project, Grand Valley Unit Stage Two Development, Final Environmental Impact Statement D.O.I. Bu. Rec., May 23, 1986, page 63.

Response

14-3 Salt loading and increase in TDS are discussed in Section 4.4.3.5 SDEIS. The annual average net evaporation loss from the proposed Muddy Creek reservoir is estimated to be 2010 acre-feet for the East Slope demand and 1910 acre-feet for the West Slope demand. These quantities represent volumes of water escaping the reservoir surface that will effect TDS concentration only and should not be confused with the net water loss attributable to the project.

Average annual inflow to the proposed reservoir is 68,100 acre-feet. Consequently, lake evaporation would result in an increase of the TDS concentration in Muddy Creek by about 3.0 percent for the East Slope demand and by 2.8 percent for the West Slope demand.

Comment Letter 14

dissolved-solid load, is increased in the river below the reservoir."[6]

4.4.3.5 page 4-109 Muddy Creek below the Dam paragraph 2.

14-4 Where is the quantitative analysis to support these blanket statements? (first two sentences)

4.4.3.6 page 4-109 Unavoidable Adverse Impacts paragraph 1.

14-5 Where is the quantification of these impacts in regards to salinity, increase salt load, and what are these impacts?

Is there a state salinity standard?

A dam creates a point source of "salination" or salinity pollution in regard to the cumulative amount of T.D.S. at Imperial Dam.

14-6 What are the site specific state standards for water quality for a reservoir in regards to the T.D.S. of the inflow water at the upstream beginning of a reservoir and the T.D.S. difference measured in the stream below the dam?

What are these T.D.S. amounts and where are these differences enumerated in this D.E.I.S. for the following reservoirs: Dillon, Green Mountain, Williams Fork, Windy Gap, Fleming Gorge, and the proposed Rock Creek/Muddy Creek Reservoirs?

Water quality should be the same or higher below Rock Creek/Muddy Creek Reservoir than the quality of water released from Green Mountain Reservoir. The T.D.S. and specific conductance must be equal to or lower than the Green Mountain release in order not to increase the cumulative T.D.S. at Imperial Dam.

3.3.2. page 3-8 Water Quality paragraph 1.

Compare this paragraph with 4.4.3.5 page 4-109 Muddy Creek below the Dam paragraph 2.

(d) ECONOMIC IMPACT

"Large scale upstream diversions of water from the [Colorado River] ...in addition to decreasing the flow in the river

[6] U.S.G. W.S.P. page 34.

Response

14-4 See expanded analysis in Section 4.4.3.3 SDEIS.

14-5 See expanded analysis in Section 4.4.3.3 SDEIS. There are no State water quality standards for salinity, but the Colorado River Water Quality Improvement Program (PL 93-320) does recognize salinity control as a basin-wide objective.

14-6 Dams are not considered a point source of salinity. See Response to Comment 14-5. The issues of salt loading from Muddy Creek Reservoir and potential downstream salinity impacts are evaluated in Section 4.4.3.3 SDEIS. The Colorado River Salinity Control Program was established to permit development to continue in the basin without impacting lower basin water users or requiring project-specific mitigation.

Comment Letter 14

would (1) decrease the ditsolved-solids load in the river and (2) increase the dissolved-solids concentration..."[7]

14-7 The Rock Creek/Muddy Creek Reservoir is a beginning piece of the proposed Two forks Project. Large diversions will be coupled with new reservoirs: two major causes of downstream water degradation in the Colorado River. Salinity increases 1.07 mg/L for each 10,000 acre-feet of depletion upstream from Imperial Dam.[8]

1) Irrigators in the Grand Valley Mesa County are facing considerable pressure by state and federal governments to increase their efforts to reduce salt loading in the Colorado River.

2) If these state and federal dictates are enforced, private lateral ownership will be lost.

3) Proposed dams will increase salt loading due to (a) leaching of salts from poor reservoir sites and (b) increasing salt concentrations in the Colorado River by large scale water diversions out of the Colorado basin made possible quantity-wise by these new augmentation dams.

4) Salinity throughout the Colorado River basin will increase as flows lessen. More T.D.S. at diversion points along the river has the potential to limit the variety of agriculture cropping. Municipal water providers will be faced with increased costs as the water requires more extensive treatment to meet the quality standards required by the state health department.

CONCLUSIONS

1) We must consider the Colorado River and its tributaries as an integrated system being pushed into a detrimental regimen by many demands.

2) The Colorado River system is a critical supply of water for many people, many purposes, and many projects in seven states.

3) The Colorado River system must not be forced into carrying increased salt loads in decreased volume and increased salt

[7] Ibid. pages 34-36.

[8] Colorado River Basin Salinity Control Project, page 66.

Response

14-7 The relationship of the proposed project to the proposed Two Forks Reservoir is discussed in Section 1.2.3.2 SDEIS.

Comment Letter 14

concentrations as a result of poorly chosen sites for dams being created to expedite the export of non-saline waters to foreign river basins.

4) The new specific beneficial use of Dillon/Green Mountain and similar reservoirs' yields will be as a quality correction release in addition to a quantity release in order to maintain in-stream standards and flows.

Sincerely yours,

Ruth P. Hutchins

Ruth P. Hatchins

Response

Comment Letter 15

NCWCD MUNICIPAL SUBDISTRICT
NORTHERN COLORADO WATER CONSERVANCY DISTRICT

October 14, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40
Steamboat Springs, CO 80487

Re: Proposed Rock Creek Reservoir,
Draft EIS

Dear Mr. Schmidt:

15·1 We write on behalf of the Municipal Subdistrict, Northern Colorado Water Conservancy District, to support issuance of a special use permit for the Rock Creek Reservoir, as requested by The Colorado River Water Conservation District. The Northern Colorado Water Conservancy District also joins in these comments.

The Municipal Subdistrict, acting for the cities of Boulder, Greeley, Longmont, Loveland and Estes Park, and the Platte River Power Authority, developed the Windy Gap Project for the purpose of providing an annual average importation of 48,000 acre feet of water from the Colorado River Basin to northeastern Colorado. The Subdistrict was required, by Colorado and Federal law, to provide extensive mitigation in connection with the development of the Windy Gap Project. A very important facet of this mitigation was the payment of $10.2 million dollars to the Colorado River District for construction of a reservoir as part of a plan, evolved between 1979 and 1985, to meet the basin-of-origin protective provision of the Colorado Water Conservancy Act.

15·2 The Colorado River District has proposed to construct and operate the Rock Creek Reservoir, utilizing the funds provided by the Subdistrict, in accordance with the provisions of the Conservancy Act. Prior to the selection of Rock Creek as the project site, the Municipal Subdistrict had studied a project at the Azure site, in lower Gore Canyon, as the mitigation reservoir under the Conservancy Act. The Azure Reservoir proved to be infeasible. The River District and the Municipal Subdistrict are both public entities. The Municipal Subdistrict believes that issuance of the special use permit for the Rock Creek Reservoir, and the issuance of all other governmental permits and approvals which the project may need, is in the public interest.

1250 North Wilson Avenue
P.O. Box 678
Loveland, Colorado 80539
303-667-2437

Response

15·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

15·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 15

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
October 14, 1987
Page Two

Recently, the Denver Water Board and the River District entered into a lease agreement for interim use of Rock Creek Water, by exchange, through Green Mountain and Dillon Reservoirs, to the Denver Metropolitan Area. This water will assist the Denver Metropolitan Area in meeting its water needs while a much needed reservoir can be built on the South Platte River above Denver. The proceeds from the lease agreement will be used by the River District to serve the water needs of those who live in the Colorado River Basin.

15-3 Thus, the people of northeastern Colorado and the Denver Metropolitan Area have pooled their financial resources to mitigate the effects of removal of water from the Colorado River Basin to the Platte Basin. This is a milestone in Colorado's history. In a state, such as Colorado where one-third of the land area is in federal ownership and this land comprises a large portion of the watershed, it is necessary for reservoirs to be built on federal land in order to conserve and manage the water resource for a multitude of beneficial uses, including water for municipal, agricultural and recreational use. One of the fundamental reasons for establishment of the National Forest System was to forward watershed management for uses like these.

The Rock Creek Reservoir project meets a need to conserve water for a multitude of uses and deserves to have a permit issued.

Sincerely,

Gregory J. Hobbs, Jr.
Principal Counsel

GJH:vlg

cc: Board of Directors, Municipal Subdistrict
Northern Colorado Water Conservancy District
Windy Gap Participants

Response

15-3 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 16

ORCHARD MESA IRRIGATION DISTRICT

Grand Valley Project

235 27½ Road Ph. 245-3390
Grand Junction, Colorado 81503

November 6, 1987

NOV 1987
Received
Routt National Forest

Mr. Gary Cargill, Regional Forester
Rocky Mountain Region
U.S.D.A. Forest Service
11177 West 8th Avenue
Lakewood, Colorado 80225

Re: Rock Creek/Muddy Creek
Draft Environmental Impact Statement
United States Forest Service
August 1987

Orchard Mesa Irrigation District appreciates the opportunity to comment on the D.E.I.S. for Rock Creek/Muddy Creek Reservoirs.

Substitution of Rock Creek or Muddy Creek for Green Mountain Reservoir to allow transmountain diversions would have a major impact on long standing agreements and operating criteria developed in connection with Senate Document 80 for Green Mountain Reservoir. As the owner of a major senior water right that would be involved in agreements and operation effected by such a plan we have great concern about the quality and quanity of water coming from any replacement for Green Mountain Reservoir.

16-1 Green Mountain Reservoir was constructed to permit transmountain diversions pursuant to agreements and legislation that protect senior water rights on the Western Slope. The most senior rights and largest users are in the Grand Valley. Therefore, in order to make a decision on the proposed substitution of reservoirs the D.E.I.S. should plainly identify the quality of replacement water as it would arrive at the head of the Grand Valley (Cameo) for low or dry as will as average water years compared to water from Green Mountain under the same conditions. The statement should also identify impacts on crop yield grown in the Grand Valley resulting from such substitution of reservoirs. As one of the most senior water users to be impacted by the proposed plan we would consider the D.E.I.S. inadequate without the above information.

16-2 Enclosed is a copy of the Corps of Engineers 404 Permit issued to Orchard Mesa Irrigation District for it's Bridges Switch pumping station at 29-C Road on the Colorado River. The permit specifies certain minimum flow and water quality standards as a condition for pumping. The D.E.I.S. needs to address any impacts the substitution of Rock Creek or Muddy Creek Reservoirs would have on our right to pump in periods of low and average water years as compared to Green Mountain.

Response

16-1 See Response to Comments 11-1, 11-2, 11-4, 14-3 and 14-6. As shown by studies conducted for the U. S. Bureau of Reclamation for the Colorado River Salinity Control Program, there will be no difference in crop yield as a result of the changes in water quality that might result from a project the size of Muddy Creek. See "Colorado River Salinity - Economic Impacts on Agricultural, Municipal and Industrial Users" by Alan P. Kleinman and P. Bruce Brown, Colorado River Water Quality Office, Engineering and Research Center, Water and Power Resource Service, United States Department of the Interior, December 1980.

16-2 The Corps of Engineers has stated that the referenced criteria are non-enforceable permit conditions because of changes in the Clean Water Act (irrigation exemption) since the permit was issued.

Comment Letter 16

Our District also has the same concerns about institutional issues and quantity of flow in the river in connection with our "check" structure as expressed by Grand Junction City in it's November 8, 1987 comments on the D.E.I.S. For the sake of brevity we will not repeat these concerns but ask that you consider the comments provided by the City as our concerns too.

We are not opposed to the projects proposed by the Colorado River Water Conservation District provided the quantity and quality of the water is the same or better than that delivered from Green Mountain Reservoir under present agreements and operation. Anything less than this should be identified and agreed upon by all involved parties in advance of construction. For this reason we believe the present draft D.E.I.S. needs to more adequately identify and define these issues together with mitigation plans if necessary.

Sincerely,

Paul H. Calder
District Mgr/Engr.

Enclosure
PHC/dg

-2-

Response

Comment Letter 17

WINTER PARK
WATER AND SANITATION
DISTRICT
Post Office Box 7
Winter Park, Colorado 80482

October 14, 1987

Mr. Jerry Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, Colorado 80488

Dear Mr. Schmidt:

The Winter Park Water and Sanitation District, which serves much of the Town of Winter Park, was pleased to have the opportunity to review the draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoirs. The District feels that such a document is well done and further feels that the adverse environment impacts can be mitigated at either reservoir site. If anything, it appears that the Rock Creek Reservoir site could be developed into a much more desirable recreational facility than what is there, with almost a hundred times more use. As an entity served by the Middle Park Water Conservancy District, the Board of Directors of the Winter Park Water and Sanitation District for all of its constituents would just restate the very great need for this facility in Grand County and would request that the Forest Service expedite issuance of its final EIS in approval of Rock Creek Reservoir as well as its permitting process. 17·1

Very truly yours,

Jack Buchheister, President

JB:bmf

Response

17·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 18

The AUDUBON SOCIETY of Western Colorado

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40--Suite 20
Steamboat Springs, CO 80487

October 20, 1987

Dear Sir,

The Audubon Society of Western Colorado appreciates the opportunity to comment on the Rock Creek/Muddy Creek Reservoir Draft EIS. We prefer the no-action alternative.

We do have comments and find a number of deficiencies in this Draft EIS.

18-1 1. This action will affect residents and water users of Mesa County, yet no public hearing was held here. We feel this is a gross error.

18-2 2. This project is intimately tied to Two Forks Dam and Metropolitan Denver's water needs. We feel that by considering action on projects such as this on a case-by-case basis, the whole picture of the environmental consequences is distorted and appears less than, in reality, it will be.

18-3 3. On page 2-7 the Draft EIS states "The Board of Commissioners of Grand County and the Middle Park Water Conservancy District...have also indicated their support for a reservoir on Rock Creek. In exchange, the River District will support the future development of a large reservoir on Muddy Creek..." Once again we have a Lose-Lose situation presented to us.

18-4 4. By providing the Colorado River Water Conservancy District with $10 million for 90% of Rock Creek/Muddy Creek water for the next 25 years, the Denver Water Board can then transfer water from Green Mountain Reservoir to the Denver area and release water from Rock Creek/Muddy Creek to supply downstream Colorado River water rights. The dewatering of the Blue River below Green Mountain Reservoir needs to be adequately addressed in this Draft EIS. Having read in the Grand Junction Daily Sentinel (10/12/87) that an in-stream water right for fisheries and recreation of 50 cfs is "just fine" with water officials when presently 95-400 cfs flow through this reach shows that the impacts from this portion of the proposed action could be severe.

18-5 5. The Draft EIS is deficient because a number of studies, including the important mitigation effectiveness of the Rock Creek mitigation plan, are not included. To tell the public that they will be able to see these studies in the Final EIS does us no good--the action will be determined at that point and we cannot present comments.

Response

18-1 Because of interest expressed and potential impacts to Mesa County, a public hearing on the SDEIS was held in Grand Junction on October 6, 1988.

18-2 The relationship between the proposed projects and the proposed Two Forks Reservoir is discussed in Section 1.2.3.2 SDEIS.

18-3 The Board of Commissioners of Grand County have requested that the statement be withdrawn (See Comment 6-2) and have since indicated support for Muddy Creek Reservoir. The SDEIS has been changed accordingly.

18-4 See Response to Comment 2-1 and Sections 3.4.3.4, 4.3.7.1 and 4.3.12.1, SDEIS. Because of the timing of substitutions (late summer and early fall) and the type of year in which substitutions would be made (dry years) no significant impacts to the rafting industry on the Blue River are anticipated from the proposed project, but cumulative impacts with other projects may be significant. This evaluation is supported by additional hydrologic data presented in the SDEIS (See Section 4.3.3.4 - Blue River).

18-5 See Section 5.2.2, 5.2.3, and 5.2.4 of the SDEIS and the Muddy Creek Reservoir Mitigation Plan, where more detail on the mitigation sites and the studies referred to in the DEIS are discussed. As can be seen in these sections, the estimates used in the DEIS for impacts and potential mitigation were very close to actual measured values.

Comment Letter 18

18-6 6. Both Rock Creek and Muddy Creek are considered by the US Fish and Wildlife Service to be Resource Category 1 areas. This means that a requirement of mitigation is "in-kind replacement." Although the intent of the Egeria Creek mitigation proposal is to be commended, it fails to meet the Resource Category 1 requirements. Page 5-3 states this proposal will mitigate approximately 50-75% of the loss and "total mitigation would probably not be possible due to the high quality of the Rock Creek habitat."

18-7 7. The acres of wetlands to be destroyed by a dam on Muddy Creek appear to be much greater than the acres of wetlands at Rock Creek. This is misleading because of the vastly different types of wetlands to be destroyed. The HEP values of wetlands at Rock Creek are very high, as these natural areas with high wildlife values are little disturbed by man. The wetlands at Muddy Creek are severely overgrazed and have very little current value for wildlife.

18-8 The comparison of the present fisheries is also dramatic. The value of the naturally sustaining trout fishery in Rock Creek is very high and would be impossible to "replace" in Egeria Creek and below the Rock Creek Dam. There is no present fishery in Muddy Creek.

18-9 The Audubon Society of Western Colorado feels that the Rock Creek proposal is totally unacceptable and that there appear to be many problems that may be insurmountable with the Muddy Creek proposal. We again urge the no-action alternative.

Sincerely,
Beth Kaeding
Beth Kaeding, Conservation Chairman

Response

18-6 The statements on p. 5-3 refer to the fishery habitat at Rock Creek and its mitigation. Additional field studies were conducted following completion of the DEIS. These studies and their results are discussed in Section 5.2.3 of the SDEIS. This section indicates that all of the habitat values at Rock Creek would not be replaced at Egeria Creek.

18-7 We appreciate your agreement with the discussion in both the DEIS and the SDEIS. Tables 4.3.8.1 and 4.4.8.2 of the SDEIS indicates that even though a greater number of acres of wetlands would be impacted at Muddy Creek than at Rock Creek, the total number of habitat units associated with wetlands that would be lost is greater for Rock Creek than Muddy Creek, which indicates higher quality wetlands at Rock Creek.

18-8 Both the DEIS and SDEIS agree with your comment. Please see Section 5.2.3 of the SDEIS.

18-9 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 19

colorado environmental coalition
39 E. Colfax Ave Denver CO 80206-1390 393-0466

Mr. Jerry Schmidt, Forest Supervisor
Routt National Forest
29587 West U. S. 40--Suite 2D
Steamboat Springs, Colorado 80487 October 21, 1987

Dear Jerry:

The following are the comments of the Colorado Environmental Coalition (CEC) on the draft Rock Creek/Muddy Creek EIS. These comments are intended to supplement the comments we presented orally on October 6 in Denver. All page number are from the DEIS.

19·1 I. PREFERRED ALTERNATIVE. Once again, CEC feels that Muddy Creek is the best site. The yields and costs are comparable (pp. 2-32, 33). A reservoir e Rock Creek would destroy a productive fishery (p. 4-48) while a dam at Muddy Creek could create a fishery, since the streamflow below the dam would be cleaner and cooler than the existing stream (p. 4-116).

The only disadvantage to the Muddy site is that in very dry years, such as 1977, this site would not provide the full yield (15,000 acre-feet) required by Denver's lease with the Colorado River Water Conservation District. However, Muddy would refill much faster after a dry year than Rock Creek would (compare figure 4.4.3.4, p. 4-23 with figure 4.3.3.6, p. 4-92). Thus Muddy Creek would be a much better reservoir for recreational purposes.

19·2 If Muddy Creek becomes the preferred alternative, will the BLM become the lead agency for the final EIS, since Muddy Creek would be on BLM land?

II. CORRECTIONS AND ADDITIONS TO THE EIS.

19·3 A. The DEIS notes that the large Muddy Creek Dam is "well beyond the reasonable range of size and cost considered feasible for this EIS" (p. 2-51). However, it was obvious from the testimony presented at the October 6th hearing (particularly from Greg Hobbs, Northern Conservancy District and Bill Needham, Grand County Commissioner) that many people favor constructing Rock Creek now so that the Muddy Creek site can be preserved for the large dam. A discussion of this viewpoint should be included in the final EIS, since it will influence the decision as to whether Rock Creek or the small Muddy Creek Dam gets built.

19·4 This discussion should mention that there is no foreseeable need for the water from both big Muddy and Rock Creek. The West Slope is not expected to grow very much and Denver could not exchange

Response

19·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

19·2 The BLM is a co-lead agency with the U. S. Forest Service. See Section 1.2.1 SDEIS.

19·3 A large (100,000 AF plus) reservoir on Muddy Creek was evaluated and eliminated from detailed study for the reasons listed in Section 2.2.3 SDEIS. The opinions referenced were not an agency decision factor in selecting the preferred alternative.

19·4 See Response to Comment 19-3 and Section 2.2.2.3 SDEIS.

Comment Letter 19

19·4 all of Big Muddy's water through Dillon Reservoir without very detrimental effects on the Blue and Colorado Rivers. Also, the FEIS should mention that the large Muddy Creek Dam would have disastrous impacts on big game by removing much of their critical winter range and cutting off a migration route.

19·5 B. SUMMARIES. CEC is pleased to see the use of "impacts and mitigation" summaries for some of the complex issues discussed in Chapter 4 of the DEIS. We would like to see this use expanded to those sections of Chapter 4 that are long, such as Water Quality and General Vegetation. These summaries will help the general public in understanding the issues.

19·6 C. IMPACTS ON SUMMIT COUNTY. The function of either Rock or Muddy Creek will be to replace water that Denver diverts out of priority from Dillon Reservoir. This means that less water will flow down the Blue River. This flow reduction will have detrimental affects on boating and possibly also on fishing. Given that many Summit County residents, at least one county commissioner and the Town of Silverthorne are all very concerned about the affects of this flow reduction on recreation and the summer economy, the FEIS should contain an expanded discussion of this problem. It might be possible to accomplish this by referencing and summarizing the appropriate sections from the forthcoming Metropolitan Denver Water Supply Final EIS. However, the discussion in that draft EIS was inadequate.

D. EDITORIAL AND TECHNICAL CHANGES.

19·7 1. Page 3-71, end of second paragraph: "Wild Trout Waters support a naturally reproducing....trout population without stocking.... Rainbow trout are stocked annually in this reach of [the Blue] [R]iver". Is this a contradiction, or is another type of trout self-sustaining in the river? Generally, "Wild Trout Water" means that there is no stocking.

19·8 2. Pages 3-80 and 81 show, for mule deer and elk, respectively, severe winter range and winter concentration areas. Both maps show these areas to include the top of Wolford Mountain. Is this correct? We feel that deer and elk are more likely to use the lower elevation surrounding lands. Certainly the north side of Wolford is unlikely to be used by these animals in winter.

19·9 3. The first paragraph on p. 3-103 discusses the fossils found at the Muddy Creek site. "The fossils were either so uncommon and poorly preserved.....that they had little....value" CEC feels that even if poorly preserved, very uncommon fossils have some value.

Response

19·5 Unavoidable adverse impacts to water quality and mitigation requirements are summarized in Sections 4.3.3.5, 4.3.3.6, 4.4.3.5 and 4.4.3.6 SDEIS, as well as in Table 2.7.1. Impacts and mitigation for vegetation are summarized in Sections 4.3.6.3, 4.3.6.4, 4.4.6.3 and 4.4.6.4 SDEIS, as well as in Table 2.7.1

19·6 See Response to Comments 2-1 and 18.4.

19·7 As discussed in the paragraph referred to, brown trout reproduce in this portion of the Blue River.

19·8 In general you are right, although the Division of Wildlife resource map, the basis for this figure, shows the entire area as part of these winter ranges. This entire area is used because it generally receives fairly low amounts of snow, making more of it usable, especially for elk. The areas along Muddy Creek are the most heavily used.

19·9 We agree that these fossils have some value, but these fossils are uncommon in the reservoir area and they are poorly preserved, so better specimens can be found readily in other areas. No rare fossils are known to occur in the reservoir area. To clarify p. 3-103, these fossils do not occur widely in the reservoir basin. They are common outside the reservoir area. Thus, their loss would not be significant if the area were to be inundated.

Comment Letter 19

19·10 4. Page 3-105, second paragraph: the Henderson Mill is not near Kremmling. Rather, it is near Ute Pass.

19·11 5. In general, the hydrology used in the EIS should consider daily peak flows as well as average monthly flows. The peak flows are important because they determine what changes will occur to river and stream channels, how fish populations will be affected and the safety and desirability of boating. Figure 4.3.3.3, (p. 4-16) shows some large differences between daily and monthly flows for Williams Fork. Thus part of paragraph two on p. 4-15 is incorrect.

19·12 6. The first paragraph on p. 4-64 mentions management prescription 3B. This should be changed to 3A, as there is no land allocated to prescription 3B in the Rock Creek study area.

CBC appreciates this opportunity to comment as well as the opportunities provided at the public hearings. We hope our comments are used to improve the final EIS.

Sincerely,

Rocky Smith
Water and Timber Issues Coordinator

3

OCT 1987

Response

19·10 The term "near" in this case refers to several miles away but close enough to have an economic effect on Kremmling.

19·11 The use of monthly versus daily flows is discussed in Section 4.3.3.2 SDEIS. Most of the significant differences between monthly and daily flows in Figure 4.3.3.3 are attributable to power plant operations. As noted in the SDEIS, the proposed project would not include power generation and, thus, would not experience any of the daily power-related fluctuations apparent in Figure 4.3.3.3. The use of monthly average flows is considered sufficient to disclose potential significant impacts of the proposed projects.

19·12 We appreciate your comment and will note this change in the FEIS.

Comment Letter 20

Colorado Wildlife Federation

9 November 1987

NOV 1987

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

RE: Comment on the Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

This comment is submitted on behalf of the Colorado Wildlife Federation (CWF). While CWF is the Colorado affiliate of the National Wildlife Federation, we are a separate corporation with our own membership of over 16,000 individuals or families. Nearly all of our membership actively hunt and/or fish in Colorado. We appreciate this opportunity to express our views and questions.

First, let us express our appreciation and commendation of the U.S. Forest Service in their preparation of the DEIS. It is, unfortunately, a rarity to see an EIS truly used in the fashion for which the National Environmental Policy Act intended, i.e. a full-disclosure, objective planning tool to help an agency and the public make the best resource decision. Most often, an EIS seems to be little more than a justification for the project proponent's preferred alternative. In this case, the Forest Service has not prejudiced the eventual decision by siding with the proponents. Instead, the proponent's preferred alternative is presented as a co-equal with the primary alternatives. We appreciate that and commend you for it!

CWF has worked closely with our sister sportsmen's conservation organization, Colorado Trout Unlimited (CTU), on this issue. Some of our comments will parallel or reiterate theirs, but our position on the question of Rock Creek or Muddy Creek will not necessarily be in total agreement with CTU. In fact, CWF has not yet taken a definite position on that question. Our comments here are on the DEIS itself. CWF does support a Rock Creek/Muddy Creek type project on the west Slope. In the Phase I alternative to Denver's proposed Two Forks Dam and Reservoir which we have developed through our participation in the Environmental Caucus, such a West Slope storage facility that facilitates improved use of Denver's water rights through exchanges involving Dillon, Williams Fork and Green Mountain Reservoirs is critical. Our initial inclination is that the Muddy Creek Reservoir of the subject DEIS may be just that reservoir, but we have some questions, referenced to the DEIS.

1580 Broadway, Rm 895 Denver, Colorado 80202 (303) 830-2337

Response

Comment Letter 20

Letter to Jerry E. Scheidt
9 November 1987
page two

20·1 Page 1-12. We're interested in your answer to all the questions raised by CTU, of course, and particularly, in this instance, why wasn't Egeria Creek considered as a possible site?

20·2 Page 2-33. In the cost comparison of alternatives, a major difference is the $1.6 million land acquisition figure for Muddy Creek. Rock Creek land acquisition is minimal since it's largely on federal Forest Land. We would like to know the official legal and policy position of the Forest Service on this issue. However, since it appears patently unfair that the U.S. Treasury would apparently not be compensated for the removal of Forest Land from multiple-/public use for private gain. Why should there not be a cost to the proponents for their usurpation of that federal land some stated land?

20·3 Page 4-28. Doesn't the stated plan to allow the elimination of the conservation pool during dry years violate the concept of a "conservation pool" as well as the arguments that a Rock Creek Reservoir would provide great recreational and fishery amenities? This same question applies to the Muddy Creek operation plan, mentioned on page 3-8, described on page 4-97.

20·4 Page 4-76. In relation to the above question, we look forward to a more complete and satisfactory analysis in response to the CTU question regarding projected recreational use and values.

20·5 Page 4-117. CWF is intrigued with the possibility that a Muddy Creek Reservoir could result in a much improved fishery downstream on Muddy Creek above Kremmling. We would hope this could become a real economic asset to the Kremmling area. The discussion on page 4-109, however, raises questions about the adequacy of our understanding about the water quality impacts and, specifically, would a Muddy Creek Dam really improve Lower Muddy Creek? We look forward to better answers here.

20·6 Page 4-123. Impacts to big game habitat, migration corridors and winter range, in particular, are of great concern to CWF. For this reason, CWF would, in all likelihood, never be able to support a large Muddy Creek Reservoir for which big game habitat loss mitigation is considered impossible. Similarly, we are concerned about the big game impacts of the Muddy Creek alternative as described in the DEIS. We are interested in more detail as to the "strategic plan to attract big game" to new (improved) winter range east of the project site and away from Highway 40 collision problems. Will it really work? The discussed three-year monitoring plan is good, but will those three years include at least one really bad (heavy) snow and cold year, and what are the contingency plans if the proposed mitigation isn't working? Who will pay for changes, who will be responsible?

Response

20·1 See Responses to Comment Letters 22 and 23. There have been no potential reservoir sites identified on Egeria Creek with a yield comparable to the sites proposed.

20·2 The U. S. Treasury would be compensated for the use of the land through the fees charged for the Special Use Permit for the reservoir. The Rock Creek Reservoir facility would be available for public use and would provide many multiple-use opportunities (e.g. fishing, boating, water supply, etc.).

20·3 Revisions to proposed reservoir operations and the increased size of Muddy Creek Reservoir for the SDEIS have eliminated potential encroachment on the 4000 AF "conservation pool" for the period of record analyzed. Minimum reservoir storage volume during the period of record would be about 10,000 AF for both reservoirs (See Figures 4.3.3.5 and 4.4.3.4 SDEIS).

20·4 See Response to Comment 22-4.

20·5 Additional reservoir water quality comparative analysis and temperature analysis were completed for the SDEIS (See Section 4.4.3.5). See Section 4.4.7.1 for an evaluation of potential beneficial impacts on Muddy Creek below the proposed dam.

20·6 Additional information on mitigation is presented in Section 5.3.4 of the SDEIS and in a detailed mitigation plan that has been developed by the BLM for the Muddy Creek alternative. (See Chapter 3.0 FEIS).

Comment Letter 20

Letter to Jerry E. Scheidt
9 November 1987
page three

20·7 Page 9-2. We share CTU's doubts about Egeria Creek as the main mitigation feature for Rock Creek. What is the water quality reality on Egeria Creek? Likewise, we share the concern about inadequate analysis of mitigation needs and costs in the DEIS.

20·8 Page 5-9. What consideration was given and why aren't proposals made to help control water quality problems in a Muddy Creek Reservoir by construction of erosion control devices in the drainages upstream from the proposed Muddy Creek site?

20·9 Why was the lower Troublesome eliminated as a possible site for habitat improvements through mitigation?

In conclusion, we look forward to your response on these questions. We agree with CTU that access to public, quality stream fisheries in this State is becoming increasingly limited. For this reason, the current and potential trout fishery of Rock Creek must be carefully weighed before a public decision is made to destroy it. The potential "win-win" nature of the Muddy Creek alternative is exciting, but is the fishery potential downstream really there and will the proposed big game and wetlands mitigation really be effective?

Again, we appreciate this opportunity to comment and we commend the Forest Service for their careful and objective approach to this important resource allocation decision.

Sincerely,

Reed Kelley
Resource Conservation Director

cc: Colorado River Water Conservation District

Response

20·7 Please refer to Response to Comment 18-5.

20·8 Consideration was not given to constructing erosion control devices in the Muddy Creek drainage as a part of the proposed project. If water quality monitoring and modeling during the design phase and early years of reservoir operation indicate a problem in this area, the suggested approach could help alleviate the problem. Proposed mitigation for vegetation and wildlife impacts would result in watershed erosion control benefits. Fencing, removal of grazing, and vegetative treatment are proposed and would all contribute to a reduction in sediment production from the watershed (See Sections 5.3.3, 5.3.4 and final Mitigation Plan). Benefits expected from removing grazing are discussed in Section 4.4.3.2 SDEIS.

20·9 Lower Troublesome was eliminated as a potential mitigation site due to its distance from the impact area and the relatively small area suitable for wetland mitigation.

Comment Letter 21

Sierra Club
Rocky Mountain Chapter

"... TO EXPLORE, ENJOY AND PRESERVE THE NATION'S FORESTS, WATERS, WILDLIFE AND WILDERNESS..."

October 21, 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

I am writing on behalf of the Rocky Mountain Chapter of the Sierra Club concerning the Draft Environmental Impact Statement (EIS) for the Rock Creek/Muddy Creek Reservoir.

The Rocky Mountain Chapter of the Sierra Club includes the more than 8,000 members of the Sierra Club in Colorado. These members reside throughout the state. Many of them make recreational use of the Routt National Forest, and many also depend on the waters of Colorado for municipal and agricultural use.

21·1 The Sierra Club opposes construction of either of the two potential alternatives, Rock Creek Reservoir and Muddy Creek Reservoir, for reasons that will be detailed further. Let me also state that the Sierra Club generally supports the comments of the Mesa County Water Association.

21·2 The Sierra Club opposes these projects due to the lack of a firm (and legally available) market for the water, due to the loss of the trout fishery in Rock Creek, due to the impacts on Mesa County water users, due to the impact on endangered species of fish in the Colorado, and because the project serves no purpose other than to provide water to fill Denver's proposed Two Forks reservoir.

Residents of Mesa County are growing ever more concerned over the apparent lack of awareness on the part of public agencies such as the Forest Service, the Army Corps of Engineers, the Colorado River Water Conservation District, and others of the impact of substantial upper Colorado River diversions on the Grand Valley. First the Corps of Engineers stated in its DEIS on Two Forks (MDWS/DEIS) that agriculture in the Grand Valley could be obliterated without significant impact to the statewide economy. Now the Forest Service has completely ignored the effect of further upper basin water storage projects on Mesa County water users.

2239 E. Colfax Avenue, Denver, CO 80206 303/321-8292

Response

21·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

21·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 21

21·3 Why were no public scoping meetings held in Grand Junction? Why were no public hearings on the DEIS held in Grand Junction? Is the Forest Service completely unaware of the interest in and concern about upper Colorado water diversion and storage projects by downstream users? Because of this lack of concern by the Forest Service for the impacts to downstream users, a number of significant issues were not addressed in the DEIS, issues that might have been identified had the Forest Service held a Grand Junction scoping meeting.

21·4 One of these issues is salinity. Other reviewers of the DEIS will comment on this in far greater detail than I, but let it suffice to say that the Grand Valley Salinity Control Project means significant diversion to water users in Mesa County and this project has apparently become little more than a federally funded mitigation measure for Two Forks and the upper basin diversions that are necessary to fill it. Rock Creek and Muddy Creek could have a quantifiable impact on Grand Valley salinity in low water years. The DEIS should quantify this impact.

21·5 Another significant issue is the necessary water pool for the Orchard Mesa Irrigation District diversions from the Colorado River at Palisade. As an Orchard Mesa Irrigation District water user, I am concerned that a 6 percent reduction in flow in the Colorado River will either increase the cost of lifting water from the river or make it impossible for Orchard Mesa to fully use its water right. What will be the impact of this reduction in flow because of the Rock Creek or Muddy Creek Reservoirs on the Orchard Mesa Irrigation District?

21·6 One substantial deficiency in the DEIS is the extremely poor discussion of impacts on the endangered fish species in the Colorado River downstream from the proposed reservoirs. The DEIS rather deceitfully claims on pages 4-56 and 4-119 that the Rock Creek or Muddy Creek Reservoirs will not, by themselves, impact the endangered fish, and yet in the cumulative impacts section (4-147) the DEIS notes that the Colorado squawfish, humpback chub, and razorback sucker may be affected. So what's the true story? Will the proposed reservoirs affect the endangered fish or not?

21·7 The statement in the DEIS (4-143) concerning the bonytail chub is ridiculous. The DEIS claims that there is no impact to the bonytail chub since it is nearly extinct. "Nearly" is not equivalent to actual extinction, or does the Forest Service intend to make a declaration with respect to a species for which it has no management authority? This is the sort of thinking that undoubtedly has contributed to the bonytail chub's current status. Since the bonytail chub has not in fact been declared extinct, the DEIS had better examine the impacts of the proposed reservoirs on it. These impacts could be substantial since the DEIS notes at page 4-56 that changes in flow in the Colorado River increase hybridization of the species. Perhaps that is why the DEIS glibly decided to ignore the consequences.

Response

21·3 A public hearing on the SDEIS was held in Grand Junction on October 6, 1988 so that agency decision makers would be aware of the concerns of downstream water users. The USFS, BLM, COE, USBR and Colorado Department of Health had representation on the hearing panel. Ten individuals attended the hearing and three made statements.

21·4 See Responses to Comments 11-4, 14-3, 14-6 and 16-1, as well as Section 4.4.3.5 SDEIS.

21·5 Water rights of the Orchard Mesa Irrigation District are senior to those of either proposed project and by law cannot be impacted.

21·6 As discussed in the sections noted, direct impacts of the proposed reservoirs would not affect the rare fish since the amount of flow change would be too small. These small depletions in flow, taken cumulatively with other small changes from other past, present, and future projects, would cause potential impacts to the rare fish. In answer to your question, yes, the proposed reservoirs would impact the rare fish from a cumulative impact perspective.

21·7 The no effect determination on the bonytail chub was made in response to past U.S. Fish and Wildlife Service Biological Opinions that indicated no effect (see the Windy Gap Biological Opinion and other recent Opinions in the upper Colorado River). The Service has recently changed their opinion and the Biological Assessment for the Muddy Creek Project also notes a may affect for the bonytail based on cumulative impacts.

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21·8 Why does the DEIS make no mention of the Upper Colorado River Basin Coordinating Committee (UCRBCC) for these endangered fish species? How does the proposed construction of Rock Creek or Muddy Creek Reservoir confore with the draft Recovery Program for Endangered Fish Species in the Upper Colorado River Basin (02/25/86) promulgated by the U.S. Fish and Widlife Service? How do the project proponents intend to make their required contributions to this recovery program? The recovery program was intended to deal with the sort of cumulative impacts to the fish of which these reservoirs are a part. The DEIS has generally ignored the impact of these specific reservoirs on the fish, yet it must consider the role of the project proponents in meeting the requirements of the recovery program as outlined in the draft recovery program. The DEIS is insufficient in this respect in that it has failed to detail the impacts to endangered species.

21·9 An aspect of the DEIS which must be corrected is its reliance on population and water demand projections (DEIS at 1-21) which have been shown to be incorrect in comments concerning the MDWS/DEIS. Does the Forest Service intend to correct this deficiency in the final EIS?

21·10 Perhaps the most severe deficiency of the DEIS is its reliance on Congressional authorization for approval of the project and the fact that there is no current market for the water yield of the project. The market which the project proponents presuppose is not legally available at present. Since the water yield from these reservoirs is intended to replace diversions to Denver out of the yield of Green Mountain Reservoir, and since the yield of Green Mountain Reservoir must by Congressional edict remain on the Western Slope, there is currently no way for the proponents to lease the water to Denver as stated in the DEIS. Indeed, it can be argued that it is beyond the scope of the Forest Service to even consider this project when it is entirely dependent upon Congressional action for completion. Federal agencies, including the Forest Service, frequently retreat to this lack of authority to act defense when confronted by requests in other arenas to consider alternatives which require legislation. Examples of this are requests of agencies by wilderness advocates to evaluate mineral lease exchanges or buy-outs when they pose a conflict with wilderness. The agencies' response is always that such an alternative requires legislation and is thus beyond the scope of an EIS and the agencies' discretion. The proposed Rock Creek and Muddy Creek Reservoirs pose precisely the same dilemma for the Forest Service. How do you explain your contradictory treatment of such alternatives? Why is the Forest Service considering a project which requires legislative authorization of questionable certainty?

21·11 The lack of a secure market also calls into question the entire financing of the project. What are the economics of the project if the cost must be borne entirely by west slope users? How will the project be paid for if Denver is unable to lease any of the water yield?

Response

21·8 At the time of the preparation of the DEIS, the Recovery Implementation Program was still in a draft stage and had not been agreed to by all parties. The program is discussed in the Biological Assessment for the Muddy Creek Project since it has been selected as the preferred alternative. The impact analysis in the DEIS and SDEIS was not questioned by the U.S. Fish and Wildlife Service and accurately and sufficiently portrays impacts to the rare fish.

21·9 The population and water demand projections have been corrected by reference to the updated System-Wide EIS (See Section 1.2.3.2).

21·10 Substitutions of water between the proposed reservoir and Green Mountain Reservoir will be implemented by an agreement between the U.S. Bureau of Reclamation, Denver Board of Water Commissioners, and appropriate other entities. This agreement will provide for the proposed changes to occur within existing legislation and authorities (See Response to Comments 11-1 and 48-5).

21·11 These hypothetical questions are not applicable. There is an Agreement and Lease for the short-term (25 year) use of the water from the proposed project (See Sections 1.2.3.2, 1.3.5, 1.3.6, and 1.3.7 SDEIS).

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Page 4

21·12 There are numerous gaping holes in the information provided for this project, not the least of which are the abysmal treatment of impacts to endangered fish species and the questionable availability of a market for the water. The DEIS fails to meet the requirements of NEPA for factual disclosure of information in these, and many other, aspects. It seems apparent that the project proponent prepared the DEIS and that the Forest Service simply put its stamp of approval on the cover. The Forest Service would be wise to more carefully review the contents of the DEIS, and should select the No Action Alternative.

Sincerely,

Mark Pearson

Mark Pearson
Chair, Rocky Mountain Chapter, Sierra Club
P.O. Box 294
Grand Junction, CO 81502

Response

21·12 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 22

Response

KUTAK ROCK & CAMPBELL
A PARTNERSHIP
INCLUDING PROFESSIONAL CORPORATIONS
8400 ENCO TOWER - 707 17TH STREET
DENVER COLORADO 80202
(303) 297-2400
ATLANTA
KANSAS CITY
OMAHA
WASHINGTON

October 26, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
Suite 20
29587 West U.S. Highway 40
Steamboat Springs, CO 80487

Re: Comments on Behalf of Colorado Trout Unlimited Concerning the Draft Rock Creek/Muddy Creek Reservoir Environmental Impact Statement

Dear Mr. Schmidt:

We represent Colorado Trout Unlimited, a part of Trout Unlimited, a national organization of citizens interested in preserving our nation's cold water fisheries. There are more than 50,000 individuals in Trout Unlimited, with 28 chapters in Colorado, including chapters throughout the Western Slope in Glenwood Springs, Grand Junction, Steamboat Springs, Meeker, Aspen, Dillon and Vail. The purpose of this letter is to offer our comments and express our concerns regarding the proposed Rock Creek/Muddy Creek projects. As has previously been explained to you and other representatives of the Forest Service, and as has been expressed in public meetings and hearings of the Colorado River Water Conservation District ("River District"), Colorado Trout Unlimited does not oppose the construction of a reservoir and associated facilities on Muddy Creek in the Bureau of Land Management Kremmling Resource area. We do, however, strenuously oppose the River District's Special Use Permit Application for the construction of a water storage reservoir on Rock Creek in the Yampa Ranger District in Routt National Forest.

Comment Letter 22

Response

Before turning to our specific comments, Colorado Trout Unlimited would like to express its appreciation to the Forest Service and its personnel for the cooperation that the Forest Service has offered to Colorado Trout Unlimited during the process of preparing the Rock Creek/Muddy Creek Draft Environmental Impact Statement ("DEIS"). We feel that the Forest Service has made every effort to provide us with information and cooperation in order to keep Colorado Trout Unlimited advised of the environmental analysis and evaluation process.

For the sake of convenience, Colorado Trout Unlimited's comments concerning the DEIS are presented in the same order as the DEIS and are referenced by identical subject headings and page numbers.

1.5.3., Page 1-12

22·1 We note that nine sites were examined as potential candidate sites. Significant by its omission as a candidate site is the watershed being considered as mitigation, Egeria Creek. Considering the present lack of habitat and lack of wet land environment along Egeria Creek, Colorado Trout Unlimited feels that this drainage should be considered as a more suitable reservoir site than Rock Creek.

2.1., Page 2-1

22·2 We believe that the set of criteria established to determine alternatives as described in this paragraph is both unrealistic and unnecessarily restrictive. In particular, one of the set of criteria is that the alternative chosen should provide "approximately the same water yield as anticipated with the Assure Project." There is no scientific rationale for trying to select an alternative with approximately the same water yield as the original Assure Project. As a matter of fact, the River District has determined to oppose the use of the Muddy Creek alternative in order to leave an opportunity to construct a much larger Muddy Creek reservoir at some point in the future. Colorado Trout Unlimited feels that the River District should not be

22·1 No potential reservoir sites have been located on Egeria Creek with a yield comparable to the sites proposed.

22·2 The SDEIS analyzes the impacts of a 60,000 AF reservoir on Muddy Creek, considerably larger than that analyzed in the DEIS. A larger site on Muddy Creek (Site A) with a potential capacity greater than 100,000 AF has been considered by others and is evaluated in the SDEIS (See Section 2.2.2.3). This site was eliminated from detailed study for the reasons presented in Section 2.2.2.3. See also Section 1.5.3 SDEIS. The public comment made to the effect that a Rock Creek site should be selected to preserve Muddy Creek for a larger (100,000 AF) reservoir in the future was not an agency decision factor.

Comment Letter 22

given a special use permit for a small reservoir on Rock Creek if at any time in the future the River District intends to participate in the construction of a much larger reservoir on Muddy Creek. A much larger reservoir on Muddy Creek in the future will obviate the necessity for any reservoir on Rock Creek at the present time or in the future.

3.8.1, Page 3-67

Colorado Trout Unlimited believes that the discussion of the aquatic biology of Rock Creek, in particular the findings that the Creek is "excellent in relation to other recognized high-quality trout streams in Colorado," underscores the very facts that Colorado Trout Unlimited feels are important to the consideration of the granting of a Special Use Permit to the River District. The facts contained in the DEIS regarding abundance of biomass and naturally reproducing populations of brown and brook trout all speak to the quality of stream fishery to be preserved. These comments are also applicable to the anticipated impacts discussed at 4.3.7.1 on pages 4-47 and 4-48.

4.3.3.3., Page 4-28

22·3 We are extremely concerned with the outlined reservoir operations planned which provide for an operations plan which would "eliminate the conservation pool during an extremely dry period" for the reason that the impact of such elimination would be devastating to the aquatic biology of the reservoir and the aquatic biology downstream.

4.3.16.1., Page 4-76

22·4 Colorado Trout Unlimited strenuously objects to the portrayal of projected visits to Rock Creek as shown in Table 4.3.16.1 on page 4-76 showing projected visits to Rock Creek in excess of 240,000 per year followed by an economic comparison of these visits to a current visitor day number of 2,000 for the stream fishery. Clearly, such an economic analysis comparing stream fishery visits today to projected visits at some time in the

Response

22·3 Revisions to proposed reservoir operations and the increased size of Muddy Creek Reservoir for the SDEIS have eliminated potential encroachment on the 4000 AF "conservation pool" for the period of record analyzed. Minimum reservoir storage volume during the period of record would be about 10,000 AF for both reservoirs (See Figures 4.3.3.5 and 4.4.3.4 SDEIS).

22·4 The distinction between impacts and benefits should be emphasized. Benefits of stream fishing at Rock Creek were calculated using Resource Planning Act (RPA) values for "Gold Medal" (high quality) cold water stream fishing, while reservoir recreation values used the lower value given by the RPA for reservoir recreation. Note, however, that the size of the visiting population for the Rock Creek fishery is extremely small relative to visitation for any of the surrounding reservoirs. See Response to Comment 3-17 and the technical supplement to the SDEIS concerning the demand estimation for further discussion of these estimates for both reservoirs. The impacts of stream fishing are extremely small relative to reservoir recreation because local expenditures of boaters is generally much higher, and the projected visitation as well as existing visitation to surrounding sites is far greater than that to Rock Creek.

Comment Letter 22

22·4 future is biased, misleading and inappropriate. We believe this data presents an understated value for stream fishery and an equally misleading picture of the value of the reservoir fishery. We also feel that the projected visits to Muddy Creek are incorrect. Muddy Creek reservoir would be within easy access of the Kremmling population, and human behavior suggests that reservoir site visits would be far higher at the Muddy Creek site than at the more remote Rock Creek site, the exact opposite of what is projected in Table 4.3.16.1. on page 4-76.

5.2., Page 5-2

22·5 Colorado Trout Unlimited objects to the concept of being offered Egeria Creek as mitigation for a portion of the loss of Rock Creek without mitigation being offered for all of the value of the loss of the Rock Creek stream fishery. In addition, the portion scheduled for mitigation on Egeria Creek is a parcel of land obtained in the middle of existing grazing and hay cropping. The River District is offering no proposal to control the amount of grazing and hay cropping upstream of the mitigation area which will result in a significant impact on the proposed mitigation section of the stream. Regardless of the amount of funding and regardless of the intentions of the parties regarding mitigation, without control of the environment and conditions upstream of the mitigation area, successful mitigation results cannot be seriously contemplated.

5.2.3., Pages 5-2 and 5-3

22·6 Colorado Trout Unlimited is of the opinion that it is impossible to offer objective and scientific comment to the mitigation proposals being offered when research data is not available at the time of the publication of the DEIS. Presentation of Egeria Creek as a proposed mitigation site without accompanying data makes it extremely difficult for concerned members of the public to comment regarding such mitigation proposals. We feel that it is most inappropriate to present a draft EIS without such data and even more inappropriate to make said data available only in the final EIS. We also

Response

22·5 Additional studies of fish populations and fish habitat were done on Egeria Creek to help define some of the potential problems you refer to. These studies and their results are presented in Section 5.2.3 of the SDEIS.

22·6 See Response to Comments 22-5 and 18-5.

Comment Letter 22

22·6 object to including cost estimates regarding undeveloped mitigation plans as outlined on pages 5-3 and 5-4. Colorado Trout Unlimited feels that such cost mitigation expenditures as estimated are seriously inadequate considering the current environment along Egeria Creek.

Additional General Comments

As expressed in the foregoing comments, Colorado Trout Unlimited has special concerns about the proposed Rock Creek reservoir location because we feel Rock Creek is a unique and irreplaceable wetland/fishery resource. In contrast, however, we think that the proposed Muddy Creek reservoir offers several potentially positive fishery/recreational benefits such as reducing downstream silt flows, increasing recreational access to Muddy Creek and possibly creating a new tailwater fishery.

The research done thus far shows that the Rock Creek fishery is, by any standard, one of the outstanding stream fisheries in the state of Colorado and one which qualifies to be designated as Gold Medal water. The Rock Creek drainage has been a prime, self-sustaining wild trout fishery for many years because it is a composite of prime habitats for different species of trout. Our members have tested and experienced most of the waters in the surrounding area and we believe it is not an answer to attempt to

22·7 mitigate the loss of Rock Creek by going to Egeria Creek. We know of no practical alternative to mitigate for the loss of unique and varied fishery that exists in Rock Creek.

22·8 We also have special concerns about the consequences to the fishery down stream of the proposed dam on Rock Creek. The River District's suggestion to mitigate in the downstream portion of Rock Creek by stocking is entirely inadequate. In the first place, the stream bed below the proposed dam site is in a narrow, tight canyon and the River District offers no proposal or explanation regarding access to the stream for stocking and/or recreational use. Without providing

Response

22·7 As discussed in Section 5.2.3 of the SDEIS, Egeria Creek would not mitigate all of the impacts from Rock Creek, but would be the best site for mitigating some of the loss. In essence, the DEIS and SDEIS agree with your statement.

22·8 Stocking below the dam was intended to mitigate the loss of the fish population in the canyon, but as indicated in the SDEIS, this would not totally mitigate the impact. Access to the stream below the dam would be provided by the dam access road that would be built during construction of the dam (See Figure 2.4.1 in the DEIS). This access would provide a means of stocking the stream and provide recreational access to the canyon.

Comment Letter 22

some access, the canyon walls are too steep for any stocking program or any practical access by the fishing public.

Summary and Conclusion

On behalf of Colorado Trout Unlimited we wish to express our appreciation for the opportunity to present comments on the Rock Creek/Muddy Creek reservoir DEIS. Access to prime stream fisheries is becoming more and more limited in Colorado. Current proposals regarding Two Forks will remove many miles of prime stream fishing along Colorado's front range, and the proposed increased water releases from Ruedi Reservoir will severely impact the Frying Pan/Roaring Fork stream fishing. Colorado Trout Unlimited is deeply concerned about the River District's arguments that a special use permit should be granted for Rock Creek instead of building a small reservoir on Muddy Creek in order to preserve the Muddy Creek valley for a much larger reservoir in the future. If the logical development of water resources for the people of Colorado mandates that a large reservoir be constructed in the Muddy Creek valley at some future date, then the current application for a small reservoir on Rock Creek seems an unnecessary intrusion on a prime environmental resource. We urge the Forest Service to consider the River District's request for a Special Use Permit not only in light of current water resource needs in Colorado, but in light of the long-term needs and requirements as defined by the River District's plans to cooperate and participate in the construction of a large reservoir on Muddy Creek in the future.

Sincerely yours,

Phillip A. McCrury

rr

Response

Comment Letter 23

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40
Suite 20
Steamboat Springs, Co. 80487

Dear Mr. Schmidt:

This letter addresses my comments on the proposed Rock Creek/Muddy Creek Reservior.

Most of the people in Trout Unlimited are in support of the Muddy Creek site for a reservoir. The Muddy Creek valley is overgrazed and abused. It does not support a fishery. Mitigation for big game habitat losses could probably be accomplished in the nearby area. The development of a tail water fishery is very feasible.

In contrast, a dam on Rock Creek would destroy an excellent small stream fishery. Rock Creek supports a self-sustaining population of trout in a beautiful area. Mitigation would be difficult and Egeria Creek is definitely not satisfactory as a replacement for Rock Creek.

23-1 With costs and water yields approximately equal on the two projects, Muddy Creek is considered to be definitely the best choice by our members.

Sincerely yours,

Dean Swanson

Dean Swanson

Regional Vice President
Trout Unlimited

Response

23-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 24

CROA
Colorado River Outfitters Association

7600 Arapahoe
Suite 114
Englewood, CO

NOV 1988
Received
Routt National Forest

Jerry Schmidt - Forest Supervisor
Routt Nat. Forest
29587 U.S. 40 suite 20
Steamboat Springs, CO 80487

Jerry,

CROA, the Colorado River Outfitters Association, represents the majority of commercial river outfitters within the state of Colorado. The association would like to go on D.E.I.S. record with the following concerns:

24-1 The Rock Creek proposal will reduce flows in the Lower Gore Canyon by 20 - 40 CFS, according to the D.E.I.S. This however is based on faulty data that assumes if all water rights were demanded, there would be no rafting on the Upper Colorado. If you look at the historical flows versus the D.E.I.S. simulated baseline flows, you are probably looking at a reduction of flows closer to 200 - 300 CFS. The timing and amount of reductions have been modeled in the D.E.I.S., but these models are not based on historical real life operations.

Basically, reduced flows in a normal year would easily shorten our season by at least a month and could conceivably destroy the commercial operations which exist there now. The D.E.I.S. has failed to recognize the potential damage to rafting operations. Operations that in 1986 had a total direct economic impact of 2,5091,000. These impacts require a much closer examination in the final E.I.S.

The Muddy Creek proposal would not reduce flows to the Upper Colorado during the rafting season as the confluence with the Colorado is above Upper Gore Canyon, therefore allowing us to use the releases for late summer rafting.

24-2 Both the Muddy Creek and the Rock Creek projects will reduce flows on the Blue River. The D.E.I.S. indicates that this will adversely impact rafting on the Blue, it does not however quantify these impacts in water flows or financial terms. This is a significant impact that should be studied further in the final E.I.S.

Response

24-1 Potential impacts on the rafting industry were considered in detail in going from the DEIS to the SDEIS. A public meeting was held in Kremmling on April 20, 1988 to discuss and review potential impacts. The simulated baseline and simulated project flow comparisons of Appendix A are considered appropriate to disclose the impacts of the proposed project. Historical flow values are provided in the SDEIS for comparison and were used in the evaluation of potential impacts to the rafting industry. Either proposed project would have the potential of enhancing the operations of the upper Colorado River water storage and delivery system to the benefit of the rafting industry (See Section 1.2.3.4). Muddy Creek Reservoir operations would also have the potential of providing augmentation releases in July and August of many years to the benefit of the upper mainstem rafting industry (See Sections 2.5.7 and 4.3.12.1 SDEIS. See also additional reservoir operational information Section 1.4.3.7 FEIS).

24-2 See Response to Comment 18-4.

Comment Letter 24

The Rock Creek proposal will destroy an existing high quality trout stream which currently has significant recreational use. The D.E.I.S. indicates that the proposed mitigation will not replace this recreational resource.

Muddy Creek proposal will flood lands that are not currently available for recreation use on a stream that is only marginally suited to use as a trout fishery.

River running on the Upper Colorado and the Blue River is a key attraction to both Grand and Summit Counties. More and more people are realizing its economic, social, and recreational value.

24·3 Colorado River is on national inventory of wild and scenic rivers. D.E.I.S. doesn't acknowledge this status and does not address impacts related the wild and scenic status of the river.

24·4 Both Rock Creek and Muddy Creek could have negative economic impacts on all of Grand County and these impacts have not been addressed in the D.E.I.S. Specifically, effects of de-watering the upper Colorado and Fraser Rivers on local water and sewage systems have not been addressed. The rafting industry heavily depends on the economic well being of Grand County for customers.

In summary, CROA would like to go on record against the construction of either project. It is felt that local economic and recreational losses have not been addressed in the D.E.I.S. and urges more research in these areas. Since the current proposals are supposed to mitigate the negative impacts from the Windy Gap project, CROA would urge further study into alternative sites.

CROA Upper Colorado Rep.

Response

24·3 Possible wild and scenic status for portions of the Colorado River is referenced in the SDEIS (See Section 3.10). As discussed in Section 4.3.9.1 Rock Creek Reservoir would have no adverse impact on this reach of the river or any on-site disturbance on the inventoried reach. Muddy Creek Reservoir would have no on-site disturbance in the inventoried reach and could provide enhancing flows through the reach (See Section 2.3.7.1).

24·4 The impacts you note would not occur, please see the DEIS or SDEIS for more detail. Neither would economic impacts occur.

Comment Letter 25

JONI ELLIS
RIVER TOURS INDIVIDUALIZED TRIPS — PROFESSIONAL GUIDES

Dear Mr. Schmidt

25·1 We do not believe the DEIS for Rock Creek/Muddy Creek reservoir has sufficiently addressed the issue of reduced flows on the Blue River below Dillon Reservoir. It states that reduced flows may limit floatboating to some degree, calls this an unavoidable adverse impact, but insignificant. The DEIS also fails to consider any mitigation for this adverse impact.

We feel the boating activities, both private and commercial, are an economic boost to the Town of Silverthorne and Summit County, especially in early summer months when jobs and tourists are not in plentiful supply. A reduction in flow on the Blue River would have a significant impact on the lives of six licensed outfitters, 60 employees, and many of the surrounding stores and businesses in the area. To find out the full story on boating recreation on the Blue, we suggest you contact the Public Information Corporation, which did a study on this topic and its economic benefits during July, 1987. Their information should be included in the

25·2 DEIS. Other facts you should look at are the phenomenal growth of river recreation on the Blue in the last five years, its projected future growth, and what this means economically to the surrounding towns.

We request that you look a little closer at the facts on floatboating on the Blue River, read through the facts provided by the Public Information Corp., and show these in the final EIS. We would also appreciate some thought

25·3 used to develop some type of mitigation for these adverse impacts. Ideas used in the past include timed releases and opening channels for boats.

Please include this letter as comments on the Rock Creek/Muddy Creek DEIS.

Sincerely

Pat Wathen & Joni Ellis
Owners, Joni Ellis River Tours
P.O. Box 764 • Dillon, Colorado 80435 • (303) 468-1028

OCT 19
Recei

Response

25·1 See Response to Comment 18-4.

25·2 See Response to Comment 3-26.

25·3 Additional analysis of potential floatboating impacts was conducted for the SDEIS, but no significant direct impacts were noted. Mitigation was therefore not required since direct impacts would not occur. As discussed in Section 4.4.12.1 of the DEIS, the Muddy Creek alternative could provide enhanced flows for floatboating in the Colorado River. (See additional reservoir operational information Section 1.4.3.7 FEIS).

Comment Letter 26

Raftmi

November 9, 1987

Mr. Jerry Schmidt
Routt National Forest
29587 West U.S. 40
Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

Enclosed you will find comments to the Rock Creek/Muddy Creek DIES that I said were forthcoming.

I appreciate the extension you gave us to study the proposal. We were able to come up with more complete comments by having more time.

Could you please include myself on the list to receive the final EIS when available?

I appreciate the work that has gone into the study and realize you will do your best to include data that I have found lacking in the study. Please feel free to contact me should you have any questions.

Cordially,

Debbie K. Marquez

encl: comments to DEIS

p.o. box 1805 • Vail, colorado 81658 • (303) 476-7238

Response

Comment Letter 26

Raftmei

November 9, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40
Suite 20
Steamboat Springs, CO 80487

RE: Comments to Draft Environmental Impact Statement
Proposed Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

I submit to you the following comments in regards to the proposed Rock Creek/Muddy Creek Reservoir project. As an officer of the Colorado River Outfitters Association and one of many commercial outfitters operating on the Colorado River, I have studied the DEIS and have found serious flaws in the study that should be examined prior to issuance of the Final EIS.

This EIS should measure all impacts of environmental, recreational and economic consequences but fails to do so in regards to river rafting/floatboating which is significant on the Colorado River and the Blue River.

RIVER RAFTING/FLOATBOATING IS IMPORTANT TO SURROUNDING COUNTIES

26.1 River rafting/floatboating (rafting, kayaking, float fishing, etc.), both commercial and private, provide a significant service and available recreational activity to the economies of several counties surrounding the project. Summer related activities are especially important to these counties. They have found that dependence on the winter ski season alone cannot support a healthy year-round economy. Nearly all ski towns are spending more money to market themselves as summer destination resorts. These counties include Eagle, Summit and Garfield. Not only Routt and Grand as studied in the DEIS.

RIVER RAFTING IS IMPORTANT TO THE STATE OF COLORADO

The river industry in the entire state of Colorado has grown tremendously over the past years. National and international recognition as a premier whitewater state is a result of aggressive marketing by the State Tourism Department and by the commercial outfitter. The State Tourism has have devoted a tremendous amount of their effort to the river rafting/whitewater sport. It is one of the more important activities that draws travelers to our state.

p.o. box 1805 • Vail, colorado 81658 • (303) 476-7238

Response

26.1 See Response to Comment 3-26.

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RIVER RAFTING IS IMPORTANT TO THE LOCAL COMMUNITIES

River rafting and other related river activities are important to residents of local communities surrounding the project. It is part of the life-style of the mountain residents. And let's not forget the importance of river activities to the residents of the entire state.

FAILURES AND FLAWS OF THE DRAFT EIS:

The following are specific areas that the draft EIS either failed to address or serious flaws found in the draft EIS. Some of the items listed are directly related to river rafting/floatboating and some are not. They are not in any priority order and should all be studied in the final EIS. Please note: when the term "river rafting" is used I am referring to all floatboating/river activities.

26·2 1) THE DEIS FAILS TO INCLUDE IMPACTS ON RIVER RAFTING on the Colorado River. It states that "simulated base flows" will not allow rafting in the future, however historic flows and historic data are used elsewhere in the study when measuring impacts. Would this be allowed if it were assumed that base flows would not allow fish to survive in the river? Why then has historic data involving river rafting not been included? Are the applicants allowed to make such an assumption when such and important recreational activity is at stake?

26·3 2) THE BLUE RIVER IMPACTS ARE STATED TO BE SIGNIFICANT, however, the DEIS fails to quantify the impacts. How is it all other flows and the impacts of those flows are measured and mitigated? Yet, river rafting on the Blue River below Dillon is not measured, nor impacts listed or mitigated? This is a serious flaw of the study that cannot be left out in the final EIS.

26·4 3) CUMULATIVE IMPACTS ON ADJACENT COUNTY ECONOMIES are not included in the DEIS. Eagle, Summit and Garfield counties could face adverse impacts should either of the proposed projects are built. Not only due to the loss of river recreation, but by the possibility that the project will lure customers now coming to these counties. Will there actually be an increase in tourism in the project area or will this project displace already established customers of the surrounding counties? This should be studied and the results included in the final EIS.

26·5 4) LOSSES EXPERIENCED BY THE RIVER INDUSTRY MAY WELL SURPASS ANY recreational opportunity benefits of the project to Grand & Routt counties. Let's face it, Grand and Routt counties have ample amounts of "flatwater" recreation as listed in the DEIS and their economies are certainly not showing increased growth as a result of this. However, the river industry is growing substantially in these and surrounding counties and attracting more and more customers. This a very important impact that should be considered.

Response

26·2 See Response to Comment 24-1.

26·3 See Response to Comment 18-4.

26·4 There are two issues in this comment: redistribution of visitation from surrounding areas (e.g., Green Mountain Reservoir) to the new reservoir and the cumulative impacts on floatboating in the Blue River. The visitation projections were based on data from the Division of Parks and Outdoor Recreation for selected sites in Colorado. It is likely that some shifts in current visitation may occur, and that there will be cumulative impacts on surrounding counties (See pages 4-88 and 4-170 of the SDEIS). The effect of either dam on the Blue River may cause some reduction in floatboating in the late season. However, the major source of these impacts is not likely to be either dam (see page 4-169 and pages 4-178 to 4-180 in the cumulative impacts section of the SDEIS). It is anticipated that an increase in the region's total reservoir visitation would likely occur.

26·5 See Response to Comment 3-26.

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26·6 5) RECREATIONAL REVENUES PROJECTED IN THE STUDY ARE SPECULATIVE if not creative. There were not substantive studies listed as a means for determining use and revenue projections at the reservoir. There should be a complete study or these projections should be completely eliminated from consideration in the final EIS.

26·7 6) "SIMULATED BASE FLOWS" WILL BE A RESULT OF THE PROJECT, yet are used as a basis for hydrological impacts. What the study doesn't include is the fact that this project will enable the front range water interests to more fully utilize their water rights. Should this study allow such "simulated facts" to be used when hydrology of record is available? I say no, and have found no reasonable answer as to why the applicant chooses to use these flows other than to avoid the real intent of this project and to avoid including river recreation impacts. Is it possible that this project is not mitigation for Windy Gap but a project that will enable the front range to get more water? Could it be these "simulated base flows" are included with the intent to avoid a project by project study of the impacts of future projects that will be a result of this project? Can we allow this project to simulate what they anticipate as the result of projects that have not yet been built or studied? You can tell by my trying to explain here that there is a very complex system of water projects that are assumed in this study. And by allowing these "simulated facts" to be used, you assume the process of permitting and other land use regulations will result in the full utilization of aquired water rights. However, these aquired water rights may not be full utilized for perhaps a 100 years. If the purpose of this project will allow these future projects to happen, then each project should be required to be studied on a project by project basis before allowing this project to be built.

26·8 7) ANNUAL FLOWS ON THE BLUE RIVER BELOW DILLON ARE NOT INCLUDED in the DEIS. There is no flow analysis and therefore no impact analysis.

26·9 8) THERE ARE SEVERAL "MISSING LINKS" REFERRED TO IN THE STUDY but not made available within the study. The public should have the right to have these documents included in the study so that the important references can be understood by the public. Since these "missing link" documents provide the basis for important conclusion in the DEIS, the least you can do is require that these documents be made part of the study. Also, some of the "missing link" documents were said to be "draft". How is it we allow draft documents that are inconclusive as such? The documents I refer to are: Resource Consultants, Inc. 1987; USDI/BR Supplement for water sales from Green Mtn. 1985; Metro Denver Water Supply Systemwide DEIS; Azure-Windy Gap Supplement Agreement, March 1985; River District/Water Board Agreement 12/15/86; Mandate of the Colorado River Conservation Board. I suggest that these "missing links be included in the final document and that any use of incomplete documents not be allowed in the final evaluation.

Response

26·6 The recreational revenues were developed from a demand study that is available from the Forest Service or the BLM. They are based on accepted values and models and were used in the Benefit/Cost study included in the DEIS as Appendix B.

26·7 Existing agreements and water rights, not the proposed project, permit the water use represented by the simulated baselins. This use can happen with or without the proposed project. See Response to Comment 24-1.

26·8 Additional hydrologic, water quality, and rafting analysis is provided in the SDEIS (See Sections 4.3.3.4 and 4.4.12.1). (See also Response to Comment 18-4).

26·9 As noted in the SDEIS these documents are available from or can be reviewed at the U. S. Forest Service, Routt National Forest office in Steamboat Springs or the BLM Kremmling Resource Area office in Kremmling, Colorado.

Comment Letter 26

26·10 9) THE NO ACTION ALTERNATIVE ANALYSIS ASSUMES SIGNIFICANT PROBLEMS will result to the applicant. By assuming this, the DEIS fails to realize that "problems" faced by the applicant are not the responsibility of the the USFS. The USFS is responsible to measure the impacts of the project not the result of no-action. Also, this assumption on the part of the USFS fails to list the positive results of no action and just mentions that things will remain status quo. Well, maybe status quo is the best thing that can happen to the environment other potential impacts. The study also fails to list the exact "problems" that could happen as a result of no action.

26·11 10) METRO DENVER WATER DEMANDS WARRANT THE PROJECT BE BUILT because the West Slope water demands and population growth were unavailable. It makes no sense to me why this was done when this project was suppose to be built to benefit the West Slope water demands.

26·12 11) ECONOMIC MULTIPLIER FACTOR IS USED RANDOMLY to show inflated economic impacts when referring to projections of recreational impacts. However, when referring to historical river industry studies, the multiplier factor is not used.

26·13 12) RIVER RAFTING STUDIES ARE AVAILABLE and should be included in the EIS when referring to river rafting impacts. The recent Hellegate Study shows that the river rafting industry provides a significantly greater amount of revenues than previously reported. Actual revenues generated by river rafting on the Upper Colorado River alone range from $3.75 - $5.5 million in total direct and indirect expenditures. Yet, the one place they study reported revenues as a result of river rafting, they used an outdated study without using the multiplier factor and the result is only $2 million in expenditures. I am more than happy to direct the applicant to more updated studies.

26·14 13) RIVER RAFTING INTERESTS WERE NOT CONSULTED in advance or during the study period. I would like to know why this important entity was overlooked by the applicants when in their study they refer to "floatboating" as an important economic factor for the region?

26·15 14) RIVER RECREATION AND THE BLM RMP are not included in the study. The BLM RMP may show conflicts between the project being built on BLM land, yet adversely effecting other areas of management for the BLM. This is an area that should be studied.

26·16 15) WATER QUALITY DATA IS INCOMPLETE in some areas. Especially data during the winter months, a time of year when water quality standards are more likely to be impacted.

26·17 16) DOES DIVERSION BEGIN DURING CONSTRUCTION? In section 2.5.1, a description of the construction process seems to say the diversion process will begin before the dam itself if built. If this is the case, it should be clearly spelled out in the study so that the public can realize this important fact.

Response

26·10 The No Action Alternative is introduced in Section 2.3 SDEIS and discussed in detail in Section 4.2. Given the purpose of the proposed project as outlined in Section 1.2.2 and the Federal role discussed in Section 1.2.1, the potential consequences of no action are relevant to the process and must be considered by the federal agencies involved. They provide a baseline against which the agencies can evaluate the balanced need for the proposed project.

26·11 The Purpose and Need Section of the SDEIS has been expanded to clarify this issue (See Section 1.2 SDEIS).

26·12 The same multiplier was used for all recreation activity: from 1.6 to 1.8 for the two-county region. This multiplier is based on the retail and service sectors in the region, which will experience direct increases in demand. Visitation is similar between fishing and floatboating. Personal conversations with floatboating operators indicated that local expenditures will likely be similar to those of fishermen. The $1 to $4 million for fishing is both direct and indirect; this suggests that fishing and floatboating have approximately equal economic impacts. Note that the economic impacts are calculated for the two-county region and not the entire Upper Colorado River Basin (See page 3-115 of the SDEIS for further discussion and references).

26·13 See Response to Comments 26-12 and 3-26.

26·14 Attempts to inform and involve the public were directed to all groups which were felt would have an interest in either the Rock Creek or Muddy Creek proposals. More specifically, public scoping meetings were held in Kremmling, Yampa and Denver on July 31, August 1 and August 2, 1985 respectively. The purpose of these scoping meetings was to obtain public comments on the proposals, alternatives and impact issues and concerns. In addition and in response to various comments received on the Draft EIS concerning "floatboating", the Bureau of Land Management held a special meeting on April 20, 1988 in Kremmling concerning this issue. A letter was sent to all of the river outfitters notifying and encouraging them to participate in this meeting. The purpose of this meeting was to discuss the Muddy Creek alternative in regards to supplemental flows and establishment of a minimum acceptable flow for commercial rafting.

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Response

26·15 The BLM Resource Management Plan does indicate conflicts between the project and other resources and is so indicated in Sections 2.5.8, page 2-29, 3.10.2, page 3-87 and 4.4.9.1, pages 4-125-126 of the DEIS. These same sections have been updated in the SDEIS and indicate more clearly the relationship of the Muddy Creek project to the Kremmling Resource Management Plan. (See pages 2-37, 3-92, and 4-163, respectively, SDEIS). Also see Section 1.9 FEIS.

26·16 Water quality sampling during the winter months by the USGS was infrequent; however, the data available indicate very little change in water quality parameters during the winter period, as would be expected. All water quality data available for the study period were used in the analysis. The water quality sections have been expanded in the SDEIS. (See Sections 4.3.3.5 and 4.4.3.5).

26·17 For either proposed reservoir, the stream would be diverted around or through the construction site, but diversions for storage,

Comment Letter 26

26·18 17) GRAND COUNTY COMMISSIONERS SUPPORT MAY NO LONGER BE THERE for the Rock Creek project. My understanding is that they may have decided that the Muddy Creek project is preferred.

26·19 18) THE WEST SLOPE RIVER DISTRICT IS BUILDING A PROJECT 9 TIMES TO BIG for west slope users. If the project yield to the west slope users is 10%, then why not build a project that is 90% smaller than proposed? After all, it is said that the mitigation should be used to benefit west slope water users.

26·20 19) THE COLORADO RIVER IS IN "WILD & SCENIC" INVENTORY and has not yet been studied. The potential designation of the Colorado as wild & scenic may have a great impact on this river. Such a detrimental project should not be allowed until a complete study and analysis is completed.

26·21 20) FLOW LEVELS AND THE "EXPERIENCE" FACTOR SHOULD BE INCLUDED in any analysis of river rafting. The wilderness/whitewater experience should not be overlooked but included in the final EIS.

26·22 21) THE IMPORTANCE OF "UPPER CORE" CANYON RAFTING should not be overlooked when analyzing river rafting on the Colorado River. A growing number of private boaters are utilizing this important wild area of the Colorado River.

SUMMARY

The Colorado River Outfitters Association and the Colorado River Outfitters thank you for requiring the above information be included in the final EIS. The DEIS is incomplete without this important data and a factual decision cannot be made without it. If you should have any questions please feel free to contact me at (303)949-4465. We, river outfitters are more than willing to help the applicant compile data relating to the river industry.

Sincerely,

Debbie K. Marquez

Debbie K. Marquez
Secretary/Treasurer
Colorado River Outfitters Association
and Co-Owner/Operator
Raftmeister
P.O. Box 1805
Vail, Colorado 81658

cc: All Colorado River Outfitters
CROA Board of Directors
Colorado River Water Conservation District

Response

26·18 The statement referenced has been deleted from the SDEIS.

26·19 The preferred alternative provides for considerably more reserve for West Slope use than originally proposed. See expanded purpose and need discussion in SDEIS for clarification of these issues (Section 1.2 SDEIS).

26·20 See Response to Comment 24-3

26·21 Since impacts to this sector were not significant, there would be no change in the experience factor (See Section 4.3.12.1 SDEIS).

26·22 See Response to Comments 26-21 and 3-26.

Comment Letter 27

WESTERN RIVER GUIDES ASSOCIATION, INC.
7600 E. Arapahoe Rd. Suite 114
Englewood, Colorado 80112

November 10, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Route National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

Upon review of the Rock Creek - Muddy Creek DEIS, I would like to offer the following comments for the record.

The proposed action would have results in a significant impact on the Rock Creek drainage. The fishery and wildlife resources will be adversely affected beyond recovery.

In addition, both proposals will result in negative benefits for Grand County and the local economy.

27·1 The DEIS did not address river running on the Colorado River. The proposed actions will displace the entire industry of some 35,000 recreation days annually in this section of the Colorado.

In 1987, 36,000 individuals enjoyed a river trip on the Colorado below Kremmling, Colorado. The average price is $40.00 per day. These dollars expand to over $160.00 with a recreational multiplier. This becomes an important economic value for the State and the local areas.

27·2 The DEIS does not consider the cumulative effects of these projects on the Fraser and Blue rivers. It is important that the results of all proposed objectives are analyzed before construction or further plans.

Western River Guides Associates support no alternative until the issues of water quality, fisheries, wildlife, and river running can be addresses and be fully mitigated.

Sincerely,

Jerry Mallett

Jerry Mallett
Executive Director

JM:mf

Response

27·1 See Response to Comments 3-26 and 26-21.

27·2 The proposed reservoir will not impact the Fraser River basin. Potential impacts on the Blue River basin are discussed for appropriate disciplines (See, for example, Sections 4.3.3.4 and 4.4.3.4 SDEIS). Potential cumulative impacts are discussed in Section 4.5 SDEIS.

Comment Letter 28

THE COLORADO ARCHAEOLOGICAL SOCIETY

Publishers of Southwestern Lore

November 5, 1987
1605 S. Mesa
Montrose, CO
81401

Gary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 W. 8th Ave.
Lakewood, CO 80225

Dear Mr. Cargill

As a member of the Colorado Archaeological Society (CAS) I am deeply concerned about the detrimental effects the construction of the Rock Creek or Muddy Creek reservoirs would have on cultural resources, in particular, the detrimental effects on the Rock Creek Stage Stop. Sites that have been placed on the National Register of Historic Places, such as the stage stop, have special significance. These places represent the best of what is left of our past. Protecting and saving these places should receive top priority.

Relocating the stage stop would take it out of context. What happened at the stage stop and its geographic location are inseparable from the building. The conclusion drawn in Section 4.3.13.1, paragraph 3 of the draft EIS is not consistent with preservation practices. It is inconsistent to urge citizens to nominate sites for the National Register then turn right around and alter or destroy them. Granting the Special Use Permit for the construction of the Rock Creek reservoir would set a dangerous precedent in regards to the status of other National Register sites that could be impacted by future construction sites. I support the no action alternate set forth in the draft EIS for the Rock Creek/Muddy Creek Reservoir.

28-1

Sincerely,
Bill Harris
Bill Harris, President-Elect
CAS

Response

28-1 We appreciate your comment, please see Response to Comments 3-36 and 3-37.

Comment Letter 29

KADA
KREMMLING AREA DEVELOPMENT ASSOCIATION
P.O. BOX 471
KREMMLING, COLORADO 80459

October 22, 1987

Jerry Schaidt, Forest Service
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

Subject: Rock Creek/Muddy Creek Dam
Draft EIS

Gentlemen:

The Kremmling Area Development Association (KADA) is concerned with the selection of the Rock Creek site over the Muddy Creek site for a water storage reservoir. We believe the selection of the Rock Creek site will not provide a positive economic benefit for western Grand County. However, the adverse impact of the Windy Gap project falls substantially on Grand County, and this proposed project is partial mitigation for the Windy Gap project. Therefore, it seems appropriate the project be located such that any potential benefits of the project can fall to Grand County.

In our opinion, the following are all reasons why the proposed reservoir should be located in western Grand County:

1) If the Rock Creek site is constructed, the majority of positive economic benefit (construction, recreation, tourism) is likely to go to Routt County. If the Muddy Creek site is selected these benefits will fall almost entirely to Grand County.

2) A major purpose of the reservoir is to fulfill an obligation of the Windy Gap project to replace water taken from Grand County; therefore it seems logical that water storage should be located in Grand County.

3) The Gore Canyon rafting business will become an increasingly important economic factor to Grand County and in the past year KADA has been working to increase Kremmling's income from this source. Releases from Muddy Creek, even though small, can help support river flows through the canyon while Rock Creek releases won't. The Draft EIS downgrades this potential benefit due to anticipated impact of the Two Forks and other projects on Colorado River flows. However, the Two Forks project cannot yet be taken for granted and therefore we should still be striving to maintain as much flow as possible through the canyon.

-1-

Response

Comment Letter 29

4) There is a county-wide effort underway to promote and improve Grand County fishing as an economic base. The Muddy Creek reservoir should provide fishing opportunities within the reservoir and improve the fishery quality of the stream below that doesn't presently exist. These features will be assets to the fishery effort, whereas a Rock Creek facility would have a net negative impact on fisheries.

5) The reservoir project selected will generate direct economic benefits beginning with construction. But indirect benefits beginning with storage will also result - most specifically the Denver lease agreement that will generate funds for water supply facilities in the Fraser Basin (also a part of Grand County). The Rock Creek project is likely to be stalled by environmental concerns, specifically the impact on fisheries. The Muddy Creek project should be able to move forward in a comparatively rapid, orderly process. Therefore it seems solutions to the Fraser problems can take place sooner with the selection of Muddy Creek, providing yet another benefit to Grand County.

We understand that construction of the "Little" Muddy Creek reservoir could prevent later construction of a larger Wolford reservoir. That may or may not be the case. But there is absolutely no guarantee the Wolford Reservoir will ever be built. However, there are funds committed to build either Muddy Creek or Rock Creek, and a guaranteed source of revenue for the completed project. Apparently, one of these reservoirs will be built. We feel the direct economic benefits to Grand County of the Muddy Creek site should be taken advantage of, and not put aside waiting for a possible project at some indefinite time in the future.

29-1 In summary, the Kremmling Area Development Association strongly supports adoption of the Muddy Creek Alternate, and without further delay to study other alternates, etc.

Sincerely,

Edward H. Opire
President

EHO:dlm
File

Board of Directors

Stewart Thomson
Bernice Overholt
Gary Bumgarner
Don Mc Limore
William H. Miller
Jerry Carpenter

Response

29-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 30

NATURAL ENERGY RESOURCES COMPANY

January 10, 1988

Mr. Gerry E. Schmidt
Forest Supervisor
Routt National Forest
28587 West U. S. 40
Steamboat Springs, Colorado 80487

Subject: Comments On Rock Creek Reservoir Draft Environmental Impact Statement (DEIS)

Dear Mr. Schmidt:

The U. S. Forest Service's Final EIS should deny construction of the proposed Rock Creek Reservoir, because there are more efficient and less damaging alternatives that have not been considered in the DEIS and the Metro Denver Water Supply System Wide Analysis.

The Upper Colorado River tributaries above Glenwood Springs are already losing about a third of their historic natural flow via eighteen diversion projects to Colorado's East Slope. Rock Creek is one of the many additional projects (i.e. Two Forks Dam) proposed by the Denver water establishment, which will further deplete these same Upper Colorado head waters. Meanwhile, several alternatives including Colorado's water Upper Gunnison Basin remain untouched and ignored in Denver's System Wide Analysis. This is in spite of several earlier Bureau of Reclamation studies, which identified major quantities of surplus Gunnison water for East Slope use. Denver's fixation on the Upper Colorado rivers, to the exclusion of other reasonable water sources, is a gross violation of EIS procedures as defined by the National Environmental Policy Act (NEPA). It is apparent the EIS process is being compromised to fit Denver's water right accumulation over the last 50 years.

30-1 The Environmental Protection Agency has already rejected the Two Forks DEIS, largely because of inadequate consideration of alternatives. This same deficiency applies to the Rock Creek and Home Stake II EIS efforts. Because of Metro Denver's new, slower growth projections, the Rock Creek project would not be required until the time frames projected for several ongoing alternatives which have never been included in Denver's System Wide Analysis. These alternatives include the major high altitude Union Park Reservoir from the Gunnison, the Collegiate Range collection project from the Gunnison, Thornton's City-farm project, Aurora's recent ag water purchases, and several other innovative water concepts. The Union Park Project can augment the Gunnison, Arkansas, and South Platte river flows in critical drought periods, while increasing the efficiency of Denver's existing reservoirs, and reducing the need to further deplete the Upper Colorado.

P.O. Box 567 - Palmer Lake, Colorado 80133 - (303) 481-2003

Response

30-1 The discussion of the purpose and need for the proposed project has been expanded in the SDEIS (See Section 1.2). The projects referenced in this comment are not viable near-term alternatives to meet the short term need in the mid-1990's (See Section 1.2.3.2) nor would they meet the applicant's purpose for the proposed project (See Section 1.2.2).

Comment Letter 30

The river environments of the Upper Colorado tributaries have already been severely compromised with the existing East Slope diversions. If Metro Denver is allowed to continue their planned piecemeal water diversions, this basin's environment and recreation economy will soon be in serious jeopardy.

When the appointed members of the Colorado River Water Conservation District accepted the historic December 1986 proposal of the Denver Water Department, it is obvious they did so without a cumulative environmental assessment of the many additional diversions planned by Denver from the Upper Colorado. This agreement has initially reduced the West Slope's organized resistance to Two Forks. It also provides for new West Slope reservoirs to be leased to Denver. Although this arrangement may be good economics for the River District and a few related land and water right owners, it will be very damaging to the long term interests of the basin. The people of the West Slope will never understand the consequences of their River District's decision unless the basic issues are fairly addressed in the environmental studies.

30·2 To assure a valid Rock Creek EIS, we strongly recommend a Supplemental Draft where the public can clearly compare the reasonable alternatives with the cumulative environmental impacts of Denver's planned diversions from the Upper Colorado Basin.

Sincerely,

Allen D. (Dave) Miller
President

ADM/be

Response

30·2 A Supplemental Draft EIS (SDEIS) has been prepared and distributed for comment.

Comment Letter 31

The Quahada Chapter
Colorado Archaeological Society
Grand Junction, Colorado

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40--Suite 2D
Steamboat Springs, CO 80487

November 3, 1987

Dear Sir,

The Quahada Chapter of the Colorado Archeological Society has received the opportunity to review the Rock Creek/Muddy Creek Reservoir Draft EIS--specifically pages 2-38, 3-1D1, 3-1D2, 4-71, 4-72, 4-13D, 4-131, 5-18--and we recommend the no-action alternative.

The proposed Rock Creek Reservoir Site would negatively impact a N.R.H.P. (National Register of Historic Places) site--the Rock Creek Stage Station. The Stage Station was placed on the register in 1982. Historic or prehistoric sites are considered eligible for the N.R.H.P. only if they contain outstanding scientific and/or historic significance. That the Rock Creek Stage Station is included in the N.R.H.P. is an indication of its importance.

31·1 In light of this, the mitigation proposal on pages 4-71 and 4-72, paragraph 4.3.13.1 is grossly inadequate. The options outlined in the Draft EIS are: moving the stage station to a new location and inventorying the site, demolishing the stage station, or recording the stage station and then flooding it. Any archaeological site, whether historic or prehistoric, suffers a drastic informational loss when removed from its context. Moving the stage station without consideration of its surroundings would destroy its scientific and historic value as completely as the measures described in the latter two options. No plans for excavation of the site, excavation of any potential outbuilding sites, soil sampling, or palynalysis are offered in the Draft EIS.

31·2 The proposed Muddy Creek Reservoir Site would negatively impact the eleven incompletely evaluated sites for N.R.H.P. eligibility that were mentioned on pages 4-131 and 4-132, paragraph 4.-4.13.1.. Furthermore, as mentioned on page 4-132, the likelihood of more sites being identified and impacted is inevitable when a complete cultural resource inventory is conducted. If any of the sites are deemed eligible for the N.R.H.P., the proposed mitigation on page 5-18, paragraph 5.3.5. "...mitigation measures [on Muddy Creek] would be the same as discussed

Response

31·1 We appreciate your comment, please see Response to Comments 3-36 and 3 37.

31·2 As discussed in Response to Comment 3-36, the mitigation proposed in the DEIS is generally considered sufficient by the SHPO.

Comment Letter 31

Response

The Quahada Chapter
Colorado Archaeological Society
Grand Junction, Colorado

for the Rock Creek Alternative," would be equally inadequate for any of the Muddy Creek Sites.

Our chapter works hard to record, excavate, analyze, and preserve historic and prehistoric sites on public lands. We strongly disapprove of any inadequate measures to mitigate or prevent site impact/destruction. In light of the proposed mitigation in the Draft EIS, we feel the no-action alternative would best preserve the scientific and historic significance of the sites in the Rock Creek/Muddy Creek areas.

Sincerely,

Robert Hutchins

Robert Hutchins, President

The Quahada Chapter
Colorado Archaeological Society
P.O. Box 566
Grand Junction, CO 81502

ATTORNEYS & INDIVIDUALS

Comment Letter 32

Response

6408 South Acoma Street
Littleton, Colorado 80120
October 21, 1987

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 West U. S. 40 - Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

Re: Rock Creek Reservoir

During several weekends in June, July, August and September of this year I made contact with several dozen people who were at Rock Creek.

More than 50% of the people interviewed were from States other than Colorado, including North Carolina, Kentucky, Ohio, Kansas, Utah, Oklahoma and Wisconsin. Those from Ohio, who were part of a group on a pack trip/trail ride organized by a ranch near McCoy, Colorado, had not been to Rock Creek previously. The others, except those from North Carolina and Kentucky, visit Rock Creek to fish, hunt and/or enjoy its many amenities on a regular basis, those from the farther States coming usually at least once a year, those from the nearer States coming more often.

At least 80% of the people to whom I spoke at Rock Creek who are residents of the State of Colorado are regular visitors, the preponderance making at least 2 trips a year to the area and some making several.

These visitation patterns have persisted with most of the people for at least 5 to 10 years and for as long as 25 years or more in more than one instance.

The Rock Creek visitors whom I interviewed ranged in age from 6 to 80+ years. A few of the youngsters were third-generation visitors. The time spent at Rock Creek varied from a few hours to several days.

When asked if they would visit the Rock Creek area if a reservoir were built there, almost to a person the reply was 'no'. Several interviewees from out of State volunteered that there were reservoirs offering fishing in their own States, but no streams or very few, so a reservoir in Colorado would not be an attraction for them. Some hunters said that they would continue to visit only if the numbers and movement patterns of the big game animals were unchanged by the construction of a reservoir.

Comment Letter 32

32·1 At the public meeting at Denver's Botanic Gardens on October 6, 1987, some statements were made regarding Rock Creek upon which I wish to comment.

1. It is inaccessible.

   From 2 exits off Highway 134, a paved, all-weather, regularly maintained road, it is only a mile or so via a gravel road to Rock Creek. The gravel road actually runs alongside Rock Creek for some distance, and in a few places it is even possible for a fisherman to cast his line out of his vehicle window were he so inclined. Since the Division of Wildlife of the Colorado Department of Natural Resources sometimes stocks Rock Creek with rainbow trout, the drivers of their fish delivery trucks can attest to the ease of accessibility.

2. It can support only 8 or 10 fishermen a day.

   Although there are days when fishing pressure is relaxed, a glance around one's immediate area will often reveal more than 8 or 10 fishermen trying their luck. Additional fishermen may be out of sight enjoying other parts of the meandering stream and its tributaries.

3. It is like a nice little private fishing club.

   For people lacking the financial resources and/or the desire to buy a membership in a private fishing club or to pay to hunt on private land, Rock Creek and its tributaries are an irreplaceable substitute. An important point to consider too with reference to usage figures on Rock Creek, if one judges them low, is the natural and well-known reluctance of fishermen and hunters world-wide to reveal to anyone else the names or locations of productive streams or game habitats which they have discovered.

4. It is a 'brookie' stream only and lacking in quality fishing.

   Apart from the many frisky, good-sized brook trout and stocked rainbow trout found in Rock Creek, Jolly Creek, Shoe and Stocking Creek, and Horse Creek, there is a substantial population of large brown trout, some over 12 inches in length. Of course, it may take some time and effort to discover where and how to catch them; that is one thing which draws people to the Rock Creek area again and again, year after year.

Response

32·1 Thank you for your comments. They were considered in the selection of the preferred alternative.

Comment Letter 32

5. Owners of land along Egeria Creek, the proposed mitigation site for Rock Creek, are willing to sell their land, and Egeria Creek is in need of considerable improvement.

   I do not think that it is the mandate of the United States Forest Service to buy private land from owners who are eager to sell but find buyers non-existent or in very short supply. Nor do I believe that it is the charge of the USFS to involve itself in local economic problems. Also, the poor condition of Egeria Creek and the land surrounding it are the result of misuse by the owners. Since they derived economic and other benefits from their ownership, I feel it is their responsibility, if not duty, to rectify the damage.

Managing the National Forests for the benefit of all the people of this country, both now and in the future, has to be the USFS' prime focus. Any change of a permanent nature to any National Forest, therefore, must be weighed extremely carefully. Should any such change prove short-sighted, returning the land to its original, or nearly original, state could prove impossible physically and/or prohibitively costly.

Sometime somewhere someone must decide how many streams will be flooded and how many valleys will be inundated by reservoirs. If the decision is not all of them, I would urge consideration of the quality of recreational experience offered...not just numbers of users, numbers of fish caught, numbers of big game animals harvested, numbers of dollars spent in an area.

32·2 It is my opinion that any such study of Rock Creek and its tributaries and the terrain surrounding them would show they will best serve this and future generations if they are left as they are.

Respectfully yours,

Ruth Beckley

Ruth Beckley

Response

32·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 33

Benton Land and Live Stock Company
Denver, Colorado 80202

Oct. 31, 1977

OCT 1977

Mr. Jerry D. Schmidt
Forest Supervisor
Routt National Forest
2877 S. U.S. 40, Suite K
Steamboat Springs, Colorado 80477

RE: Rock Creek/Muddy Creek
Environmental Impact Statement

Dear Mr. Schmidt:

On September 29, 1977 I participated in a field tour of the Rock Creek/Muddy Creek sites sponsored by the U.S. Forest Service and the Colorado River Water Conservation District. One of the subjects that was addressed was "mitigation". If a reservoir is to be built on Rock Creek, the mitigation being discussed is re-establishment of a stream fishery and wetlands on Egeria Creek. I was somewhat disturbed to hear some, especially the Colorado Division of Wildlife, claim that Egeria Creek will not provide satisfactory mitigation because it could not be re-established as an effective wetlands. The opposite is true. I remember very well that several years ago the Egeria Creek drainage in the area we visited supported a large and extensive stand of willows, with adjoining "wetlands" and supported very good fishing. Hopefully this will dispel doubts the Forest Service may have about using Egeria Creek lands as mitigation for the permitting of the construction of a reservoir on Rock Creek. Certainly I can understand that those who were not familiar with and don't have the memory of Egeria Creek may find reason to believe that "wetlands" and fishing could not be re-established at Egeria Creek, however, from my own personal knowledge, Egeria Creek could more than meet reasonable mitigation requirements.

33-1

As a long time resident in the Yampa area and one who is familiar with the Muddy Creek, Rock Creek and Egeria Creek areas, please include in the record of comments on the draft environmental impact statement my request that the Forest Service issue a permit for the construction of a reservoir on Rock Creek.

Sincerely,

John T. Benton

Response

33-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 34

To Whom It May Concern:

In regards to the Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir Routt and Grand Counties, I would like to address the following comments.

34-1 I am opposed to the Rock Creek Reservoir. The issue of degrading a beautiful fish hatchery will no doubt be represented by Trout Unlimited and like concerned parties. Above and beyond this issue I am more concerned about a loss of Water Flow (CFS) on the Upper Colorado. I have been made aware that Water Calls at the Shoshonee Dam might would be supplemented with the Rock Creek Reservoir. This would mean less water released from the Colorado and Blue Rivers upstream from us. Our entire livelyhood is dependent upon the Rafting Industry. If any less water would have been released this past Summer (1977) we would have had to shut down all rafting and fish and float operations. With 35,000 people rafting and a generated income of 10.8 million dollars to Grand, Eagle and Routt counties through the rafting industry, this would not be feasible to anyone.

The Muddy Creek Reservoir on the other handwould serve more positive purposes. It would open up a new recreation sight, clean up the terrible silt that flows into the Colorado at Kremmling (thus making a better fishery in the Colorado River) and would allow for the same water release flows coming down our river for the Rafting Industry. Muddy Creek insures dollars to all. Rock Creek would only take them away.

I also feel there would be less legal litigation to construct Muddy Creek versus Rock Creek. Let's spend our tax dollars on positive issues instead of constantly fighting negative ones.

Thank You

Mark J. Bernhardt
Rancho Del Rio

Response

34-1 Thank you for your comment. It was considered in the selection of the prefarred alternative.

Comment Letter 35

Jerry E. Schmidt
Forest Supervisor
Routa National Forest
29587 West U.S. 40
Suite 20
Steamboat Springs, Colo. 80487

November 3, 1987

Re: Rock Creek/Muddy Creek Reservoir Draft E. I. S.

Dear Sir,

Please make my letter protesting the building of these reservoirs a part of the hearing record.

35-1 I understand that a National Registered Historical Site in the form of a stagecoach stop will be either destroyed entirely or moved. The moving of a stagecoach stop would, in fact, destroy it as the location is the most important part of it's history. I adamantly protest the removal or destruction of any of our heritage, it is nonrenewable. There will be no more stagecoach stops built...ever.

35-2 It is my understanding that the water you want Grand Junction to receive to replace that which comes out of the Dillon Reservoir is from the Mancos Formation. While I am neither a water expert nor a geologist, upon asking more informed people than myself, I have been told that the Mancos Formation waters are certainly more saline than those Alpine waters from Dillon Reservoir. From what I have read in the local paper the last few years not only our local farmers, but Arizona, California, and Mexico all have problems with salinity in the Colorado River. Frankly, it's a poor trade for us. One last question comes to mind in regard to Front Range water use, and that is the communities that still are unmetered as far as water consumption. Perhaps the Eastern Slope had better clean up all their leaks before taking more Western Slope water.

The one thing that we on the western side of the Continental Divide have come to realize over the years is that, if Denver had its way, the Colorado River would flow to the east. Perhaps those people built their city on the wrong side of the hill.

Thank you.

Barbara Blackshear
P. O. Box 40333
Grand Junction, Co. 81504

Response

35-1 We appreciate your comment. Please see Response to Comments 3-36 and 3-37.

35-2 See Response to Comments 11-4 and 14-3.

Comment Letter 36

Jim Blugerman
PO Box 399
Georgetown, Co. 80444

October 25, 1987

Mr. Jerry Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, Co. 80487

RE: Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

36-1 I favor locating the proposed reservoir on Muddy Creek for several reasons. The Muddy Creek site is far less damaging to the environment. I have fished Rock Creek, and to lose this resource would be tragic. Egerie Creek is also not adequate as mitigation for Rock Creek.

Muddy Creek will require little mitigation for its replacement. In fact, it has been shown that the creation of a dam may provide an outstanding tailwater fishery. This would be excellent environmentally, and also aid the town of Kremmling economically.

As the costs of construction and the capacities are nearly identical, I believe Muddy Creek is the only logical choice for the dam.

Sincerely,

Jim Blugerman

Response

36-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 37

Box 243
Yampa, CO 80483
October 20, 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

The current plan as expressed in the Draft Environmental Impact Statement on Rock Creek and Muddy Creek Reservoir sites has serious deficiencies that if not corrected will prevent construction of the Rock Creek project.

Egeria Creek Mitigations

37-1 There are no provisions for long term day to day oversight, administration and maintenance of the Egeria Creek wetlands and wildlife mitigation. Once the fences are built, who maintains them? If unauthorized grazing occurs, who is responsible for correcting the problem? Who is responsible for assuring that the wetlands and wildlife areas are preserved? No agency (the Forest Service, the Bureau of Land Management, the Water Conservancy District, etc.) is given responsibility for the year in and year out operations and costs associated with the maintaining of the Egeria Creek environmental mitigation. There is no plan for administration: personnel, responsibilities, and budget.

Under the current plan as expressed in the DEIS, the Egeria Creek wetlands and wildlife area cannot meet the requirements for environmental mitigation. Egeria Creek, if approved, must be returned to a natural environment.

37-2 The entire DEIS is quite vague in its overall handling of the Egeria Creek wetlands and wildlife mitigation proposal. The public is entitled to an active voice in the specifics of the mitigation plans. The Water District's position that it does not want to do more until after the project is approved and the land purchased violates the entire purpose of public comment. Until a specific plan is presented and the public has commented, the Rock Creek project cannot be approved. The entire project can be stopped for many years, even though the Water District has announced its approval, if the specifics of the mitigation plan are faulty. To put it another way, it is time to put the cards on the table and see what is in your hand.

There are no irrigation ditches or water rights in the natural ecosystem on Rock Creek. That natural habitat feature must be duplicated on the mitigated lands. There can be no ditches and no water rights on the Egeria Creek mitigation area. Abandonment is required. If Egeria Creek is approved, the Water District is required to make a clear and fully detailed statement on its Egeria Creek water use plans.

Response

37-1 Operation and maintenance of the potential mitigation sites would be included in the development of the detailed mitigation plan. Such a plan has been developed for the Preferred Alternative, Muddy Creek, and the detail you question is included in that plan.

37-2 The results of additional studies on the Egeria Creek site are included in Sections 3.2.2, 5.2.3, and 3.2.4 of the SDEIS. A detailed mitigation plan would be developed if this alternative was developed.

Comment Letter 37

Paul Bonnifield
October 20, 1987
Page 2

Located on the Egeria Creek mitigation property under consideration are active and abandoned reservoirs. On Rock Creek there is a wild natural environment without man made dams. To improve the Egeria Creek mitigation area to the natural condition of Rock Creek requires the removal of all the dams and returning the reservoir sites to their original condition.

The law and regulations are clear. Mitigated lands must be improved to a natural ecosystem. There are no little water arrangements in a natural ecosystem. The ranches on Egeria Creek, once they are purchased, must be returned to a natural environment as rapidly as possible. The farmsteads and people are removed. All agriculture (except limited and strictly controlled short term grazing) is stopped. Hay and farm land is returned to natural vegetation. The Water District cannot have a purchase and lease back agreement. Wildlife habitat mitigations must be solely a wildlife area.

37-3 The Egeria Creek wetlands proposal is a high risk area for salts. The shale outcroppings on both sides of Egeria Creek and at both ends of the proposed site make it quite clear that salt bearing shales are near the surface. And those salts are water soluable. East of the proposed wetlands and immediately adjacent to the railroad tracks is a small man made reservoir. That reservoir has clear evidence of alkali along its shore. It is entirely possible that the effort to raise the Egeria Creek water table and maintain it at a high level for wetlands can and will result in bringing heavy salts to the surface.

The Draft Environmental Impact Statement leaves three major areas unanswered: long range management and responsibility, returning the wetlands and wildlife area to a natural ecological system without irrigation ditches, dams, and water rights, and the real danger of destroying the very ecosystem that is to be created through the transportation of water soluable salts to the surface.

Rock Creek Site

Natural resources must be used only when needed and used wisely. The Water District is required to use and develop water for Western Slope use in the most constructive manner for the longest period of time. Currently there is no need on the Western Slope for water stored at Rock Creek. As recognized by representatives of the Water District at the Yampa meeting, the metro area had several options for water besides purchasing the 25 year lease. They could purchase water from ranchers on the eastern slope, use conservation steps, etc. When one member of the audience commented that he thought the water was too cheap at $250 per acre foot, a member of the Water District explained that a higher price would have resulted in Denver turning to other options. To put it another way, the Water District was the low bidder at the market. To be low bidder should not be confused with need. If the need was real, the options would have been sharply limited, the water demand higher, and the price for the water much greater. The harsh truth is that the Western Slope does not need water from Rock Creek at this time, and the metro area only purchased the water lease to help the Water District finance the Rock Creek project. They don't want the water. Denver has other economical options.

37-4 Since the water is not needed by either the eastern or Western Slope,

Response

37-3 See Section 5.2.2 and 5.2.4 of the SDEIS. The areas at Egeria Creek that would have water applied to them have historically been artificially irrigated. Therefore, continued flood irrigation of these areas would not be expected to create the problems suggested.

37-4 The Purpose and Need section of the SDEIS has been expanded to show East and West Slope needs (See Sections 1.2.3.2 and 1.2.3.3 SDEIS).

Comment Letter 37

wise use of the Rock Creek dam site requires that the area be saved and protected until it is needed. The stream and the dam site will not go away. When the Western Slope needs the water, the storage facility can be constructed. In the meantime, the water won't be tied up in a water agreement which can prevent taking advantage of the resource if opportunity occurs in less than 25 years. The Western Slope needs that flexibility and the valuable resource to attract economic growth which will turn our regional economy around.

The annual water yield at Rock Creek is 17,000 acre feet or less. The "beneficial use" water is something less that the total yield. The reservoir is to be over 50,000 acre feet. That is a large storage dam relative to beneficial use water. A 30,000 acre foot reservoir can easily store the annual yield water and provide the beneficial use water for any reasonable scenario. The data in the DEIS supports a smaller reservoir. To build a large reservoir for the sheer hell of building it is bad economics, it is wasteful of public funds, and it wastes natural resources.

37.5

The Rock Creek wetlands and wildlife area to be flooded and destroyed is among the best wetlands in the state. As more reservoirs are built throughout Colorado, and streams like Rock Creek become more rare, the stream's value increases. There are numerous natural and man made lakes in northwestern Colorado. High quality streams that are open to the public and suitable for families with small children are scarce commodities. Since the water is not currently needed by the Western Slope or the eastern slope, there is no pressing need to destroy a highly valuable and economically profitable resource. The wetlands can be saved for many more years without retarding the economic, social, or political development of the conservancy district. There is a pressing need for protecting and using the natural resource to its full potential.

It is suspected that the primary drive behind the move to build Rock Creek is the monies received from the Windy Gap settlement. The $10,000,000 provided by the Northern Conservancy District may be burning a hole in the Upper Colorado River District's pocket; however, that is not a sound reason to rush out and build a dam. Arrange to put the money in escrow and let it draw interest until a dam is actually needed. If the $10,000,000 Northern Conservancy District money is handled correctly, it can grow to a larger sum by the time the Rock Creek dam is actually needed. The Western Slope won't have to be the cheap water bidder on the eastern slope market.

The wise use of the natural resources, the current actual needs for eastern slope and Western Slope water, and the investment possibilities of the capital clearly indicate that this is not the time to build the Rock Creek Dam.

For $250 per acre foot, Denver has purchased all the industrial development, educational facilities and opportunities, research possibilities, and infrastructure improvements that the water can command for the next 25 years.

As the lowest bidder the water district sold all the economic, social, and political development that the water commands for the next 25 years. At a time when western Colorado needs full and capable use of all of its resources to attract industries, improve education, encourage research, and rebuild its infrastructure, the conservancy district allowed someone else

Response

37.5 Detailed hydrologic and reservoir operational studies indicate that a reservoir volume of about 50,000 AF will be required to provide a firm annual yield of 17,000 AF. The reservoir is not oversized for the anticipated demand (See Section 1.2.3 SDEIS).

Comment Letter 37

full use of the most valuable resource--water. Water is like blood, if you don't have it, you cannot live.

Yours truly,

Paul Bonnifield

Response

Comment Letter 38

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40
Suite 10
Steamboat Springs, Co. 80487

November 4, 1987

Re: Rock Creek/Muddy Creek Reservoir Draft Environmental Impact Statement. Pages 2-38,3-101, 3-102, 4-71, 4-72, 4-130, 4-131, 5-18.

Dear Sir:

I wish that the following protests be made a part of the hearing record. I am asking that you take a NO ACTION position on the two reservoirs referenced above.

38.1 1. Projects recorded on the National Register of Historical Places are those with outstanding historical significance. Considerable time and effort are required to meet the standards of NRHP. Presumably a large portion of this time was volunteer work by individuals like myself who are more than willing to give of their time to preserve our heritage. To do anything but keep these sites 'in situ' would be an insult to the avocational archeologist.

The mitigation alternatives proposed for the Rock Creek Stage Station are grossly inadequate. To move the site would remove it from its context, the stage route and therefore destroy its value. To destroy or/and inundate, even after recording,would be even worse. Any of the three alternatives chosen would leave a negative impact on all NRHP sites. They would be in jeopardy whenever small entities like the Colorado River Conservation District decided to use up more Federal Land for insignificant projects.

38.2 2. The Muddy Creek Reservoir is situated in a formation of Mancos shale which is highly brackish. I know this because the city of Grand Junction is situated on this same formation and the farmers in this area have trouble with leaching salt. I strongly object to trading the Alpine waters of the Dillon Reservoir that is now provided for a much lesser grade just to convenience Denver.

Thank you,

John J.Browns
2908 Crocus St.
GrandJunction, Co.
81508

Response

38.1 We appreciate your comment. Please see Response to Comments 3-36 and 3-37.

38.2 See Response to Comments 11-4 and 14-3.

Comment Letter 39

November 5, 1987

Routt National Forest
Forest Supervisor
29587 W. US Highway 40
Suite 20
Steamboat Springs, CO 80487

Attn: Mr. Jerry E. Schmidt

Mr. Schmidt:

39.1 I am writing this letter to voice my opposition to the proposed Rock Creek Dam & Reservoir in the Gore Pass area of Routt County.

Rock Creek is where I learned to fish and Rock Creek is where I tought my children to fish. It has always been my secret fishing hole. Now I hear they are proposing to build a dam and destroy this beautiful little stream. I can't believe it! Surely there must be some other means of obtaining water for the thirsty giant on the plains.

I hope this letter helps in preventing an irreplaceable treasure from being destroyed and I also hope my children can teach their children the joys and beauty of fishing Rock Creek.

Sincerely,

Steve Butler
1255 S. Fenton St.
Lakewood, CO 80226

Response

39.1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 40

Charles R. Cole
Attorney at Law

200 Grand Ave., Suite 301
Post Office Box 987
Grand Junction, CO 81502

Gery Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 W. 8th Avenue
Lakewood, Co 80225

5 November, 1987

Dear Mr. Cargill:

I would like to comment on the Draft EIS for the Rock Creek/Maddy Creek Reservoir, Routt and Grand Counties, Colorado. Please make this letter part of the hearing record.

First, I oppose building either reservoir. There are too many dams in the United States now, many of which are not adequately or safely maintained. We do not need more.

Second, I oppose paying for either project as a taxpayer.

Third, I do not believe that the mitigation proposed for the loss of natural ripation habitat is adequate, nor could it be. Man cannot create, nor re-create natural areas. Experiments in "managing" environments have consistantly met with failure, principally because we do not know enough of the consequences of our conduct. Yet, we continue to alter, change, and destroy. This is an opportunity to exercise both wisdom and restraint by leaving well enough alone. The flora and fauna which would be destroyed, damaged, or forced out of their home or patterns do not know how smart we are. They are not able to understand what we are doing, or why, and may not ever be able to recover.

Fourth, I do not believe that the Rock Creek Stage Station should be removed, destroyed, or inundated. There should be more significance to placement on the national Register of Historic Places than for it to be disregarded at the first sign of its

Response

Comment Letter 40

being inconvenient. Many people spend much time and energy in securing designation. Before a site is approved, it must be found to be of national significance. Are either of these water projects of national significance, or are they no more than a convenience of East Slope water interest?

40-1 On balance, I believe that these projects are ill-considered, short-sighted, and not in the interest of the public at large, nor in the interest of the environment. Therefore, I urge the adoption of the NO ACTION alternative.

Sincerely,

Charles R. Cole

CRC/taj

cc: Senator Tim Wirth
Senator William Armstrong
Governor Roy Romer
Supervisor, Routt National Forest

Response

40-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 41

OCT 1987

Sally J. Cole
841 Ouray Avenue
Grand Junction, CO 81501
October 25, 1987

Gary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 W. 8th Avenue
Lakewood, CO 80225

Dear Mr. Cargill:

This letter is a comment on the Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir, Routt and Grand Counties, Colorado. Please make this letter part of the hearing record.

First, I would like to state that I am opposed to the building of the two reservoirs by the Colorado River Water Conservation District at the general taxpayers' expense to benefit development without conservation goals along the Front Range. Part of the expenditure to the taxpayers includes the cost to the Forest Service to produce the EIS.

As an archaeologist, I object to impacts proposed for the Rock Creek Stage Station. National Register properties are not to be treated as if they can be moved or destroyed at the whim of any agency with funding to do so. The location of the resource, the site location, is part of the site significance. The proposed mitigations disregard that fact as well as showing little regard for the concept of protection of cultural resources. This is very discouraging for citizens who work to protect and record the cultural resources, many of who donate their time to government agencies.

41-1

Significant prehistoric cultural resources have been discovered as the result of various water projects in Colorado. With the exception of the Dolores Project, the record is not good for agencies having allowed sufficient funding and time to properly mitigate the resources and salvage and publish the information. Windy Gap in northwest Colorado, Dallas Divide and Jerry Reservoir in west-central Colorado are examples of such incomplete projects. I am not encouraged by the vague language of the subject EIS concerning cultural resource survey and mitigation that there will be proper funding or time allotment should the Rock Creek/Muddy Creek Reservoirs be approved.

41-2

The creation of replacement riparian habitats due to the losses of natural habitat as a result of Rock Creek/Muddy Creek Reservoirs is not viable as presented. Secondary impacts have to be considered as well as the inability to "create" natural areas and change centuries-old wildlife patterns. It is not likely that man-made or improved riparian habitats in combination with

Response

41-1 We appreciate your comment. Please see Response to Comments 3-36 and 3-37.

41-2 Both the Forest Service and the BLM consider cultural resources at either alternative reservoir site to be valuable and important resources. They have made it very clear in the DEIS and SDEIS and to the River District that complete and adequate surveys and mitigation that meet the requirements of the laws pertaining to these resources will be required.

Comment Letter 41

increased recreational and developmental impacts can possibly substitute for native habitats now being utilized by wildlife and hosting various native vegetation communities in relative solitude. I note that some riparian habitats proposed for improvement have been adversely impacted due to poor range management. It would seem that these areas should be promptly restored to the extent possible to protect the natural resources rather than being offered as an alternative salvage project in case a reservoir destroys other major riparian zones. With the current demands being made on environmental and cultural resources, it is not proper management policy for agencies to neglect a percentage of their resources and use improvement of those to offset loss of areas of major environmental and cultural importance. I urge you to choose the No Action alternative.

41-3

Thank you for the opportunity to comment.

Sincerely,

Sally Cole

Sally J. Cole

xc: Governor Roy Romer
Senator Tim Wirth
Senator Bill Armstrong
Jerry Schmidt, Forest Supervisor

Response

41-3 The Bureau of Land Management and the Forest Service have a very strong commitment to the management and restoration of riparian habitats. The agencies realize that restoration of these areas pays big dividends in a wide range of resource values. The agencies are working towards restoring these areas as quickly as possible.

It was not and is not the agencies intention to neglect any area or resource and then use these areas for improvement to offset losses due to outside proposals in other areas. The areas designated for improvement and the mitigation planned for these areas will protect the natural resources and speed the recovery of these areas.

Comment Letter 42

John S. Courtney
P.O. Box 276
Toponas, CO. 80479

Jerry Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40 Suite 20
Steamboat Springs, CO. 80487

Mr. Schmidt;

I would like to take this opportunity to commend you and the Forest Service for the outstanding job you did in the prepreation, investigatioo and presentation of the Rock Creek Reservoir project. I was in attendance at the Yampa meeting, and I feit you were able to answer all of the ligitimate concerns of the public. As you know some of the "barbs" were coming from "career negatives".

I spoke of the ecoocmic value this project may add to South Routt County, and I firmly believe Rock Creek Reservoir would be very helpful in our ettempt to restore a very depressed area. I just received a depressing bulletin from South Routt School District, which I am encloeing. I sincerely hope you take this into account when you are making the final decision on this project.

42-1 The support for this project by the "Elected Officials", The Routt County Commissioners, shouid speak loudly for the silent majority, and I strongly urge you to render a poeitive decision on the Rock Creek Reeervoir.

Thank you for your conaideration of this extremely important matter.

Sincerely,

John S. Courtney

Response

42-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 43

October 15, 1987

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. Highway 40 - Suite 20
Steamboat Springs, CO 80487

Ref: DEIS
Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

43-1 I would like to register my strong objection to the proposed Rock Creek reservoir and suggest that the Muddy Creek alternative is far superior with respect to environmental damage. A reservoir at the Muddy Creek location in an elreedy-abused and overgrezed valley, would perhaps creete an enhanced resource by cresting a tailwater fishery where none exists currently.

The economic future of this stete rests entirely on the ability of each of us in present stewardship of the lands to preserve and improve all of the many natural resources which make our stete an enjoyable and desireble piece to live.

Rock Creek is a beautiful, undisturbed, productive trout stream which would be annihilated. With so few such pieces remaining, how can we, as a society, even consider such destructive projects.

Sincerely,

Howard S. Cos
1505 48th Street
Boulder, Colorado 80303

cc: Colorado Trout Unlimited

Response

43-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 44

Box 770866
Steamboat Springs, CO
October 21, 1987

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40, Suite 20
Steamboat Springs, CO 80487

SUBJECT: Rock Creek / Muddy Creek Mitigation Proposals

Dear Mr. Schmidt:

I would like to submit my comments relative to the dreft EIS for these proposed projects. I am a real estate broker who has lived and worked in Steamboat Sorings for the past fourteen yeers. I have experienced the evolution of our economy in northwest Colorado from agriculture/mining/ tourism-based to the current economy that is predominantly tourism-based. I believe that these facts are very pertinent to these proposals given the nature of the proposed sites.

The alpine stream nature of the Rock Creek site is a good example of the mountain environment that our residents and visitors dream about. Such environments, whether presently used or not, should be preserved in their natural condition to sustain this dream. I believe that the economy of this area desperately needs to preserve natural wonders on the one hand, yet needs to encourage development of other forms of recreational use to continue to attract the mainstay of our economy - the vacationer.

I understand that the Muddy Creek site proposed would inundate dryland-type pasture and non-alpine terrain. Its rather convenient location to US 40 and Kremmling would seem to allow greater recreational use and thus, perhaps, more justify the Muddy Creek site.

In addition to my economic/recreation assessment above, I must speak as a concerned citizen against further encroachments of the Denver Water Board into the basin of the Colorado and Yampa Rivers. Quite simply, the proposed "mitigation" of Rock Creek water into the Elgeria Creek drainage is ludicrious - the destruction of a proven fishery by substituting water into a pasture-type stream is just another attempt to discredit our intelligence and create further dangerous inroads to water that is needed in this part of the state.

44-1 In closing, I understand that we really do not have a choice about a project in this case; just which one is the lesser impact/precedent. I would like to support the proposed Muddy Creek site and strongly urge you to reject the proposed Rock Creek site and attendant mitigation plan. I thank you for your efforts in compiling citizen concern and will be happy to provide further communication.

Sincerely,

Steven C. Downs

scd
cc

Response

44-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 45

Jerry E Schmidt
29587 W. U.S. 40
Steamboat Springs, CO

Dear Mr. Schmidt:

My husband and I attended the public hearing held for reservoir sites in Temple on October 8. It was an interesting and informative meeting and we gave a vote of confidence to the men on the Review Board.

We were especially impressed with each one's ability to answer immediately the flow of assorted questions presented to them.

45-1 We favor the reservoir on Rock Creek for many reasons:

1) Colorado is economically depressed and we feel that anything that would draw revenue would be beneficial to all.
2) It might help our small community to grow and, perhaps it prosper from the influx of tourists who would seek out a new site for recreational purposes.

Response

45-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 45

Response

2) the monetary return from fishing licenses is very minimal compared to the fees paid for big game hunting.
3) Your plans for the Gatchell/Eglin Creek sound reasonable and fair to me.
4) Water is the most important commodity on the face of the earth and we feel it should be #1 priority.

We know that the responsible people in charge of building this dam will be compassionate in dealing with the general environment and that they will work out each category involved carefully and to the best of their ability.

Sincerely,
Mr. & Mrs. H. N. Eudie
McCoy, Colorado

Comment Letter 46

Response

635 Larimer St.
Steamboat Springs
Colo. 80477
Nov 9, 1987

National Forest

Dear Sirs:
I like fishing Rock Creek alot and I like it. It's a fine creek to fish as well as being beautiful. I do not want to see it dammed. Damn Denver — having lived there for 16 years I am always amazed & shocked with its wide spread wasteful waste of water. Until Denver is completely metered & the city sees water as a valuable resource, I am against Rock Creek dam.

Sincerely
Dawn Feriman

46-1

46-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 47

Dear Jerry E. Schmidt,

47-1 In regard to the proposed dams along Rock Creek and/or Muddy Creek, I say say to both.

Can the very water that falls from the skies over Grand and Routt Counties not atleast be left alone to flow their natural courses and provide what resources they have always?

The best thing mountain folks can do to slow the cancerous growth of Denver is to cut off the very thing that feeds Denvers growth, water.

As Denver grows, their own quality of life will continue to decline, so not only does

Response

47-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

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this high country loose water, but we help in Denvers decline.

I am not grossly naive, I realize that Denver legally owns 80% of Grand Counties water and presently uses only 50%.

On the other hand, during summer months in the Fraser River Basin, the Denver Water Board allows enough water (supposedly a reasonable amount) to keep alive about three rants and a frog.

It is atleast as important to keep some of this areas streams healthy and wild as it is to live up to outdated

Response

Comment Letter 47

Response

water laws.
For what it's worth, that is my opinion.

Sincerely,
Tom Gagnon

Box 704
Winter Park, CO
80482

(303) 726-5356

Comment Letter 48

Response

MEMO

TO: Jerry E. Schmidt, Forest Supervisor
FROM: Paul H. Grant
SUBJECT: Rock Creek/Muddy Creek D.E.I.S.
DATE: October 21, 1987

I am an employee in the rafting industry and a concerned resident of Grand County. This E.I.S. indicates that the impacts of these reservoirs to the rafting industry are non existent for the Colorado River and not worth quantifying for the Blue River. Those conclusions are grossly in error and they are a product of data manipulation and a very simplistic approach to the evaluation of those impacts.

The Upper Colorado River has supported considerable commercial rafting use for the last several years. Between 30,000 and 50,000 people can be expected to take commercial raft trips here each year. If we take a 1987 price of around $40.00/person times 30,000 people that results in an annual gross amount of $1,200,000 dollars for the Colorado River alone. This is a "significant impact" to many people in this region.

In evaluating the actual impacts one must first understand how the water from the projects will be used. The E.I.S. indicates that the Denver Water Board (DWB) is willing to lease the total output of either reservoir for the next 25 years. The document also indicates that Denver is seeking control of the Shoshone power plant rights. To anyone who has followed the actions of the DWB for the last several years, these are clear indications that the current proposals are closely linked to the DWB Two Forks Reservoir project. In order for Denver to fully develop their water rights at the headwaters of the Colorado and the Blue they must satisfy certain senior downstream rights. The reservoir proposals would provide replacement water for upstream diversions, and the Shoshone rights could reduce what has to be

Comment Letter 48

released during certain times of the year. Unfortunately, this can result in serious dewatering of the subject river between the diversion point and the release point. If Rock Creek were built then serious dewatering could occur between the Town of Fraser and the Rock Creek confluence with the Colorado as well as between Dillon Reservoir on the Blue and the Rock Creek confluence on the Colorado. The section of special concern to most commercial rafters in this area would be from Upper Gore Canyon to the Rock Creek confluence. This section will be affected by additional dewatering on both the Blue and the Colorado.

48-1 The E.I.S. ignores rafting impacts on the Colorado River and justifies this by stating that the "simulated baseline conditions" indicate that existing water rights would not allow "quality floating" even without the development of Rock Creek Reservoir. This is like saying that we haven't been operating so our loss makes no difference. Well I'm here to tell you that we have been operating and we are a significant portion of the recreation industry in this region.

The simulated baseline figures involve a number of subjective choices and a very complex water rights system. Water rights in this State are based in part on water re-use and the type of use that water is put to. If Denver owns a particular agricultural right they will not be able to apply all of that right to a consumptive use like transmountain diversion. The agricultural right was historically used for a few months with considerable return flows going off the field and down the river. Denver can only consume a portion of an agricultural right based on historic consumption. I'm concerned about whether this and other water rights requirements were incorporated in the preparation of the simulated baseline data.

Response

48-1 Potential impacts on the rafting industry were considered in detail in going from the DEIS to the SDEIS (See Response to Comment 24-1).

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48-2 The true impacts of these reservoirs are hidden from the public by the use of the "simulated baseline conditions" to quantify the impacts. The difference in flow levels between the "historic flows" and the "simulated baseline flows" have not actually been removed from the rivers because potential upstream diversions cannot be captured unless augmentation flows are provided for downstream senior rights. Projects such as those proposed in this E.I.S. will be used by water rights owners like the DWB to provide these augmentation flows. Therefore, the reductions shown in the E.I.S. as "simulated baseline flows" represent major flow reductions that would not occur without the subject reservoirs. The actual negative impacts cannot be evaluated unless total reductions from "historic flows" are quantified for all affected river or stream segments.

The E.I.S. indicates that the flows on the Colorado below Kremmling will not be greatly impacted by either reservoir on a yearly basis. This conclusion is based on certain assumptions concerning the timing and quantity of release. These operation scenarios are not guaranteed. I believe that the Muddy Creek Reservoir operations might not negatively impact rafting, due to its location and the probable timing of its captures and releases. It may even turn out to be a positive addition for July, August and September flows. The Rock Creek Reservoir would definitely result in negative impacts, as all additional upstream diversions on the Blue and the Colorado tributaries would be removed from our area of operations. In addition, while the yearly reductions might seem low, the reductions during our commercial operating months could far exceed those figures and could completely eliminate our industry.

48-3 This is an unmitigated negative impact which would be economically destructive to our region, and it should be thoroughly discussed in the evaluation of the Rock Creek project.

Response

48-2 See Response to Comment 26-7.

48-3 See Response to Comment 18-4 and 24-1.

Comment Letter 48

In evaluating these projects from a Grand County point of view, one must first question the choice of alternatives that were used. The Muddy Creek proposal is only one of several alternatives, despite what appears in the E.I.S. One of these alternatives is at the same location as the current proposal but it provides approximately 20,000 acre feet of additional storage for relatively little additional cost. Such a proposal would compare much more favorably with the Rock Creek proposal and I am confident that the River District would build the more cost effective project rather than the one discussed in the E.I.S. One must ask how a realistic comparison of two proposals such as those in the current E.I.S. can be made if you're not utilizing the most cost effective proposal for each site?

48·4

Both the Rock Creek and Muddy Creek projects could have negative impacts on all of Grand County and these impacts have not been discussed or quantified in the E.I.S. Augmentation releases from either reservoir will result in additional dewatering of most of the Colorado River and all of the Fraser River, by upstream diversions. All of the municipalities in Grand County that draw water and/or discharge sewage into these rivers will incur additional expenses in their operations as flows are reduced. These include Winter Park, Fraser, Granby and Hot Sulphur Springs. All ranching operations within the affected section from Winter Park to Kremmling will also incur additional expenses to utilize their water rights. (This impact was well established by the Windy Gap evaluation process). These ranchers will be further impacted by the damage done to the fishery on their property. Fishing leases are significant income producers on some ranches. Public fishing areas will also be damaged. Future development and economic growth in Grand County will definitely be hindered. An Upper Fraser Valley reservoir or series of reservoirs might mitigate these problems, and money from the lease of the

48·5

Response

48·4 A 60,000 AF reservoir at Muddy Creek Site C is analyzed in the SDEIS and is the preferred alternative.

48·5 This evaluation is not substantiated by the hydrologic analysis. With Williams Fork Reservoir, Denver currently has the ability to fully utilize their diversions upstream of Kremmling. This project will not change the historic functions of Williams Fork Reservoir and will not change the diversions by the Moffat Tunnel diversion system.

Substitution of water involving Green Mountain Reservoir and the proposed reservoir will be the subject of an agreement between the United States (Department of Interior), the Denver Water Board, and appropriate other entities. Conditions under which substitution can be made will require specific approval of the Secretary of the Interior (acting through the Bureau of Reclamation) prior to implementation of this agreement. As noted in Section 1.1, the SDEIS is the Bureau of Reclamation's NEPA compliance document for this proposed action. If future substitutions or exchanges are proposed which have impacts different from those disclosed in the SDEIS, additional NEPA compliance will be required by the Secretary of the Interior. The agreement will be limited to a substitution of water between Green Mountain and Muddy Creek Reservoirs. Therefore, the proposed project will not impact the referenced reach of the Colorado River. See Response to Comment 6-1. The proposed project will not impact the Fraser River basin.

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augmentation water from one of the current proposals might be used to build in the Upper Fraser Valley. But what about the lag time between the current proposals construction and construction in the Upper Fraser Valley. This lag time will be very costly to the citizens of Grand County and no Upper Fraser project may ever be built. It is interesting to note that the current proposals are supposed to mitigate the negative impacts from the Windy Gap Project in Grand County. The Rock Creek Project would result in additional costs to most County residents without one positive benefit. The Muddy Creek project could provide additional revenue to the County (because the Grand County government owns much of the water rights that would be leased) and would preserve the rafting industry, but it would still negatively impact most of the County until Upper Fraser Valley storage is built.

48·6

There are many other facets of this E.I.S. which should be addressed in detail and I hope others will key in on these things. Things such as why should an existing "significant recreational resource" like Rock Creek be destroyed and replaced by a low to medium quality fishing lake (pg 4-53) and a rehabilitated Egeria Creek that the E.I.S. (pg 4-57) says "would not replace all of the existing aquatic resources of Rock Creek"? Why is this preferable to Muddy Creek where no current recreation exists and the reservoir would add 150,000 RVDs of use/year? Or why were sedimentation rates at the Kremmling gage used to evaluate sedimentation in the Muddy Creek Reservoir when most of the sediment loading occurs either below the Reservoir site or within the area to be flooded? A realistic evaluation of sediment loading can only be obtained by utilizing data collected where the creek enters the proposed reservoir in this particular case.

48·7

Response

48·6 Thank you for your comment. It was considered in the selection of the preferred alternative. See Response to Comments 6-1 and 48-5.

48·7 The drainage area above the USGS Kremmling gage is 290 square miles. The drainage area below Site C is about 26 square miles or about 9 percent of the total drainage. The use of the total drainage by the USGS to estimate loading to the reservoir is conservative and provides a worst case estimate for EIS evaluation purposes. The alternative USGS gage (near Kremmling) is so far above the reservoir site that sediment loadings there would be unrealistic. There is no existing data base where the creek would enter the reservoir and use of this point would not account for the drainage area contributing directly to the proposed reservoir. The approach used is the best available, represents USGS standard practice, and is conservative (See Response to Comment 3-25).

Comment Letter 48

In summary, I would like to say that from a rafting industry perspective of the two projects, the Muddy Creek reservoir project would be preferable. However, if all of the impacts in Grand County are to be addressed, then a decision on this E.I.S. must be postponed until a thorough study of potential Upper Fraser Valley reservoir sites is completed. The resulting information could provide other alternative projects or mitigating additions to the current proposals.

Response

Comment Letter 49

KIT W. HADDOW, D.D.S.
1208 Orchard Avenue
Grand Junction, CO 81501
245-2990

To:
Jerry Schmidt Forest Supervisor
Routt National Forest
29587 West U.S. 40 Suite 20
Steamboat Springs CO 80487

From:
Kit Haddow
President-Grand Valley Anglers of Trout Unlimted
2686 Caribbean Dr.
Grand Junction CO 81506

Dear Mr. Schmidt

The Grand Valley Anglers have long been an advocate of cold water fishery protection. It is our intention to monitor growth and development in Colorado with an eye on habitat preservation.

I have studied the Rock Creek and Muddy Creek D.E.I.S. The project has been discussed at our local mettings. Our members regard water as a sacred resource.

I believe the D.E.I.S. on both Rock Creek and Muddy Creek is well written and comprehensive. The document includes mitigation proposals that are acceptable.

49-1 The Rock Creek/Muddy Creek project has the potential to benefit west slope water needs, east slope water needs and recreation interests. The construction of one or both of these projects is a benefit to all the people of Colorado.

Sincerely

Kit W Haddow

Response

49-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 50

W.E. Haggerty
3813 Hillview
Grand Junction, CO 81505

Sept. 30, 1987

Jerry Schmidt
Routt National Forest supervisor
29587 West U.S. 40, Suite 20
Steamboat springs, CO 80487

Dear Mr. Schmidt:

I just read an article in today's Grand Junction Daily Sentinel about the Rock Creek/Muddy Creek dam site selection.

50·1 I would like to go on record as opposing the Rock Creek site in favor of the small Muddy Creek Reservoir. I am a native of Colorado, having been born and raised in Denver. I have fished in Rock Creek since I was a little boy, and I have hunted in the area where a large Muddy Creek Reservoir would go, since I was a teenager.

While I love the trout fishing in Rock Creek, and know in my heart Egeria Creek will never replace it, I'm really worried about the area where Big Muddy Creek Dam would go. As I say, I'm very familiar with the area and that dam would wipe out a healthy population of deer. Those deer are worth a heck of a lot to the town of Kremmling. Granted, the town would be repaid economically, to some degree, with a dam and the recreational beiefits from it. But they could get the $$$ from small Muddy Creek, and save the $$$ fgrom the hunting of deer too. Having a dam on Rock Creek and another dam on Muddy Creek, and the new stagecoach dam and the dozens of others already in the area....it's just too much.

We need some dams, but let's not overdo it.

Sincerely,
W.E. Haggerty

Response

50·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 51

Jerry Schmidt
Forest Supervisor
29587 W. U.S. 40 Suite 20
Steamboat Springs, Co. 80487

Parcie M. Hein
Box 773181
Steamboat Springs, Co.
80477

Dear Mr. Schmidt,

51·1 I would like to officially submit my vote for No dam at Rock Creek or Muddy Creek. Please read on.

A water storage facility at either of these areas would only further upset the integrity of our watershed, as any of these water-trap does. And for what? What benefits can we/we this side of the divide reap? Personally, I see none. For I see a fisherman, quietly casting into a free-flowing stream, replaced by a noisy and polluting power-boat user. I see a naturally "muddy" stream being choked up against a barrier/pond, in its confinement, dropping its load and filling up the bottom of this new bathtub with sludge.

Neither site is preferable. What is preferable to me is that some of all this money which the Colorado River Water Conservation District insists upon spending would go into the idea of Conservation. Instead of allowing and encouraging people to keep wasting and using up water at the current rate simply by building another dam for them, I'd like to see a state-wide effort by this agency, the Governor of Colorado, and especially the Denver Water Board, to move toward less water use per person- water conservation on an individual, personal level.

They could start by getting each community onto a metered system and then double the existing rate. I'm sure this would be a hard pill to swallow, but now people would think twice about over-watering their lawns(and street, and sidewalk), running a half-empty dish or clothes washer, or using 3½ gallons of water to throw away a kleenex. Which brings me to another point. We could start investing some new technology into the antiquated and highly wasteful plumbing industry. I cringe when I think of millions of people flushing 3½ gallons of water down a toilet,-several times a day. That's probably a reservoir-full right there!

Can you see my point, Mr. Schmidt? We have become nothing more than an over-consumptive drain on our Earth's ecosystem. We think we can keep on taking and sitering, without regard for a system which must maintain a balance. And it will maintain this balance- but only, ultimately, at our expense.

We are beginning to see the consequences of our folly- polluted and disappearing aquifers(due to unwise agricultural practices)which can no longer be replenished, rivers which dry up before they can reach their destination and complete the cycle... We're drying up our planet. To the earth, where water is life, that means she is aging rapidly. And after old age comes...

Let's not become just another in a long list of contributing factors when someone, somewhere checks a text while reading the cause of death in an obituary for Mother Earth.

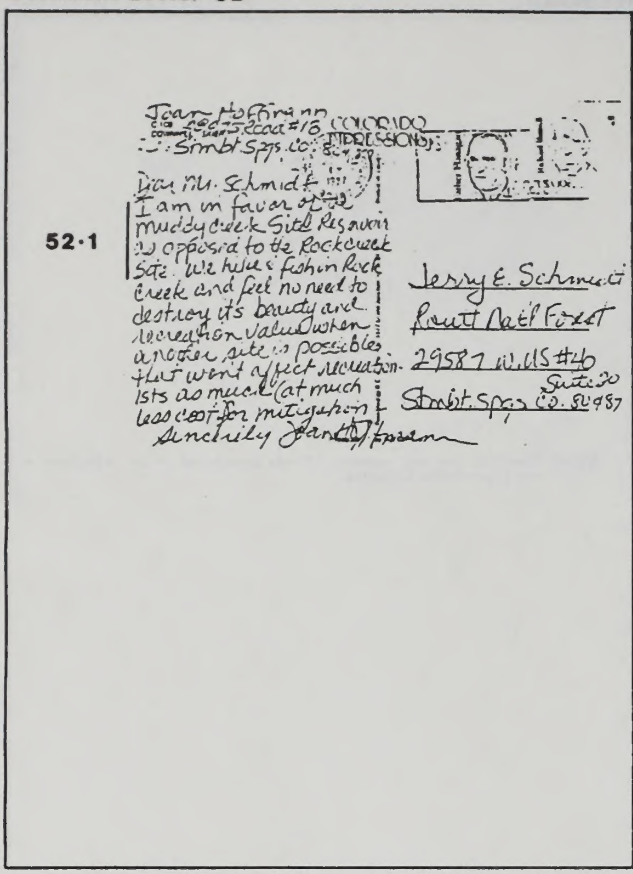
Sincerely,
Parcie M. Hein

4 OCT 1987 Received Routt National Forest

Response

51·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 52



Joan Hoffmann
c/o Rocky Mtn Resource #10
Steamboat Springs, Co.
80487

Dear Mr. Schmidt,
I am in favor of the Muddy Creek Site. Reservoir
& opposed to the Rock Creek
Site. We have a fishery in Rock
Creek and feel no need to
destroy it's beauty and
recreation value when
another site is possible
that won't affect recreation-
ists as much & at much
less cost for mitigation.
Sincerely Joan Hoffmann

Jerry E. Schmidt
Routt Nat'l Forest
29587 W. US #40
Suite 20
Steamboat Springs, Co. 80487

52·1

Response

52·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 53

To the editor,

Water, water everywhere? No! Water, water forever? I hope so!

Good ole H2O is becoming quite a critical issue. We who love Grand County had better start paying attention to what's going on. I took a crash course on the Rock Creek/Muddy Creek Reservoir proposals on Wednesday, Oct. 7, in Kremmling, at a hearing presented by the U.S. Forest Service. I have a much clearer comprehension of the situation now. The following is what transpired, as I understand it:

Basically, the Windy Gap Project is taking a bunch of our county's water (specifically that of the Fraser River Valley) and sending it to northeast Colorado. By Colorado Supreme Court order, $10.2 million has been made available to the Colorado River Water Conservation District to construct a water storage reservoir and thereby compensate for the diversion. The River District has proposed Rock Creek as the site, which isn't even in our county, let alone our Fraser drainage. It is in Routt County. An alternative site, Muddy Creek, north of Kremmling, has also been proposed. This is still about as far downstream as one can go for most of our county.

Of the two proposals, Muddy Creek is the most beneficial for us. River rafting, a $1 million annual county-wide business, could have minimum flows somewhat protected at low-level times with reservoir releases (Rock Creek is too far downstream). Ranchers could have the same protection, but they need to know that certain minimum levels are truly guaranteed. Apparently the powers-that-be are giving them a run-around. Resort lake potential is there for Kremmling with the reservoir (surface of 1,200 acres), but Grand Lake might have some complaints since their lake are still struggling for lakers. (I suggest that the reservoir be limited to water storage with minimum road maintenance and not even one picnic table installed until tourism demands more development.)

So much for the Rock and the Muddy. There were a few vocal locals who want to deny both proposals and have the project located in the Upper Fraser (Vasquez possibly) to hold the water where it will benefit us, Fraser River Valley residents. I agree that would be the fairest compensation, as our valley is the most directly affected by the diversion and the sound future of our local water systems is already threatened.

However, there is always compromise. Apparently, the River District wants to compromise Muddy Creek in favor of Rock Creek. Our county commissioners were asked to preference the latter so it could be studied as a possibility and not jeopardize a much larger Muddy Creek project sometime somewhere in the future. One commissioner I spoke with wants to support Muddy Creek now, and subsequent monies from the sale of its water to Denver could finance an Upper Fraser Project! Do we have a bird in our hands here somewhere?

There will be a public hearing with our commissioners on Oct. 19, at 1 p.m., at the County Courthouse in Hot Sulphur Springs, to discuss how compensation for our water [illegible] should be utilized. Are we (and our waterboard) strong and adamant enough to demand of the River District another alternative? Or should we fight to insure that the compensation is at least within our county boundaries? It's not too late to alter the plans. So, come to the hearing on Oct. 19 and help decide. The Forest Service will be accepting written comments until Oct. 26. Our water is precious today and even more precious tomorrow.

Sincerely,
INGRID KARLSTROM
Fraser

53·1

Response

53·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 54

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, Colorado 80487

October 8, 1987

Dear Mr. Schmidt:

I am writing to you today to express my views on the proposed dam project on either the Rock Creek or Muddy Creek.

54·1 I wish to state my strong feelings and opinion that Muddy Creek would be the most logical choice of the two alternatives. I feel this way because:

- Rock Creek is a high quality eco-resource representing excellent trout habitat. It would be senseless to destroy such a pristine natural resource.
- On the other hand, Muddy Creek is located in an already low-quality valley which supports little wildlife, especially the creek itself which is no fishery.
- Egeria Creek would present a totally inadequate mitigation for the loss of Rock Creek.

It would seem to me that overwhelming evidence would dictate that the dam be built on Muddy Creek and not on Rock Creek.

Thank you for recording my opposition to destroying Rock Creek with the construction of a dam better suited for Muddy Creek.

Sincerely, from a Concerned Citizen,

Peter M. Lagerman

Peter M. Lagerman
2543 Scenic Place
Longmont, Colorado 80501-3638

Response

54·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 55

James R. Linville
P.O. Box 2873
Steamboat, Co., 80477

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40--Suite 20
Steamboat, Co., 80487

Dear Sir:

55·1 I would like to go on record as opposing the construction of a dam on either Rock or Muddy Creek as per the draft EIS of August 1987.

Basically, I am not willing to sacrifice the environment of western Colorado to water lawns on the East Slope (Denver, Fort Collins, Boulder, C. Springs and suburbs).

It is unconscionable that the USFS and the Colorado River Water Conservation District (River District) would lower themselves to call this project mitigation for the Windy Gap Project when in reality its sole purpose is to cover certain water demands downstream so that yet additional water can be diverted from Dillon Reservoir via Roberts Tunnel to Denver; and then claim that it is only short term when after 25 years the chance of getting that water back is infinitesimal.

East Slope expansion mania should not be permitted to force the West Slope to "develop now or loose" thereby disrupting the slower-paced, closer-to-the-land lifestyle that most of us live here for. If the East Slope would truly like to "mitigate" the use of West Slope water, why don't they join us in pushing for the necessary changes in water law and political reform that would preserve water flows and rights for the West Slope ad infinitum without necessarily building dams on every side creek in the state "right now!"?

There is a drive to grow economically that has gone haywire (the boom mentality--the buffalo hunter mentality); there is a priceless environment rich in elk, deer, fish, wild streams and untouched vistas; there is the Colorado River Compact which appropriates more water than actually falls from the skies; there is a dynamic, vicious circle at work and the driving force is greed.

District (River District).

The charter of the Colorado River Water Conservation/ I believe, dealt with the planning and construction of the necessary water projects for reclamation, irrigation, etc. in the 15 counties in Colorado making up the drainage basin of the Colorado River; not to act as an arm of the Denver Water Board.

As far as I can see, your entire DEIS won't hold water because it is a document trying to justify a project with little or no benefit and a great deal of impact for the area where it would be built.

Response

55·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 55

-2-

Following is a discussion of sections of the DEIS which have led me to the above conclusions:

1. Forest Service Plan. c.f. sec. 2.4.8, 3.10, 4.3.9 . As stated in these sections the Rock Creek Reservoir does not fit the existing FS plan for the area; especially those areas designated 4B and 3A. Some considerable effort, time, date and knowledge must have gone into deciding on those designations. What good is it to study a piece of land and make management plans to preserve and enhance its best qualities and then just throw it all away by changing a few numbers on a map. Sec. 4.3.9.3 says it well; "The inundation of 1072 acres of land is an unavoidable adverse impact as existing land uses would essentially be eliminated." Why add the word essentially?

2. Wildlife--Rock Creek

a. Information about the elk use of the Rock Creek area is sketchy;e.g., no mare of migration routes and winter, summer, calving areas are included and no population or use estimates are given. Statements like "...it is suspected that sufficient summer habitat exists in surrounding areas..." (p. 4-6, P6) indicate inadequate study of wildlife use in and around the area.

b. P 2, p. 4-59 says "Loss of 1086 acres of non-forested wildlife habitat...would be considered a significant impact because of the limited quantity of non-forest habitat types that occur in the Routt N.F." P3), p.4-60 on the other hand says"loss of elk and mule deer summer range...would be adverse but not significant...." These two statements are directly contradictory and demonstrate the inadequacy of study of the wildlife question.

c. p.3-73 P3 and p.4-61 P2 imply that calving areas and fall migration of elk might be impacted, but again no maps are given to help understand what the migration patterns are.

d. p.4-58 P4 says construction might inhibit moose from increasing their present light use of the area. The program to re-introduce moose into Colorado was a milestone, albeit underfunded. To do anything to jeopardize that program directly contradicts the mission of the CDOW and BSFS in the area. Perhaps part of the area was designated 8B in the FS plan with that in mind.

e. p.4-58 P1. Is the area a calving, fawning area or not and if so how can you suggest that its disruption would be "very short term" ? Either elk and deer are allowed sufficient calving, fawning areas or they leave.

f. p.4-58 P3 says the "numbers are low". What are the numbers?

3. Wildlife--Muddy Creek That this area is a critical elk/deer winter range including some calving areas is stated clearly in sec. 3.9.2.1 with accompanying maps. The mitigation plans have received considerable study but somehow I get the impression that it all works out well on paper and in the computers, which may or may not have anything to do with reality. The following examples illustrate my concern. p.5-18 P3 suggests putting haystacks in one place unfamiliar to the elk so they won't mess with the haystacks they've always raided before--sounds like firm reasoning. Sec. 5.3.4.4 says "surplus [AUs] in the

55·2 By Regulation (Title 36 Code of Federal Regulations [CFR] Part 219.10[e], all projects proposed on National Forest System lands must conform to the direction, standards and guidelines set forth in the Forest Plan. However, modifications may be made in the area direction, management prescriptions and other aspects of the Forest Plan in order to accommodate new developments and changing public needs. We concur that for the reasonably foreseeable future, existing land uses would be eliminated.

55·3 As discussed in Section 3.9.1, relatively little quantitative data is available concerning wildlife use of the Rock Creek area. The Forest Service and Colorado Division of Wildlife feel confident that the qualitative description of the wildlife use as presented in the DEIS is accurate, and that it is also sufficient for determining impacts. Therefore, there was no reason to collect additional information of wildlife use of the study area. The non-forested habitat and the elk and deer summer range are not necessarily the same, as you suggest. Elk and deer summer range include forested areas. Non-forested habitat is recognized by the Forest Service as an important habitat type for many species such as the study area because it is a scarce habitat type within the forest and therefore, its loss is important.

55·4 We appreciate your comments on the proposed mitigation for wildlife impacts at Muddy Creek. Elk historically used the area proposed for haystacks, but moved off this area when they were fed during the severe winter of 1981-82. Species of wildlife used as HEP evaluation species represent portions of the available habitat, not necessarily the species itself. An elk model was used to portray the meadow areas of wetlands with low shrubs, yellow warbler portrayed areas of taller shrubs, etc. Those models were used to evaluate habitat and guide mitigation efforts, not to show losses to the individual species, and that is how they were used in the DEIS.

Comment Letter 55

-3-

two species [beaver and yellow warbler] would offset the need in the one [elk]." So all will be well as soon as the elk begin building dams and nests for the beaver.

4. Fish

a. Biomass estimates of self-sustaining brook and brown trout are above 30 lbs./acre for the study stations on the 2 total miles of Rock, Little Rock, Shoe and Stocking and Horse Creeks; and streams with 20 lbs./acre are candidates for Wild Trout waters by the CDOW. We're talking about irreplaceable fishing streams; irreplaceable!

b. The paragraphs on pp.4-48 to 51 concerning trout habitat downstream imply that native species will diminish due to lack of spawning and recruitment potential and that stocked species will probably move downstream due to cold water from the dam. pp.4-33 and 4-52 indicate that the reservoir itself will be a poor fishery after the first few years and in a drought year when they pull the conservation pool all the fish will die. Then as the reservoir refills they will poison off all native browns who have tried to reestablish themselves and start all over trying to create a poor quality fishery of rainbows. As far as I can tell any efforts to sell Rock Creek Reservoir as a recreational area for fisherman would be pure hypocrisy and a waste of public funds.

55·5

c. p.4-61 P5 says there will be no adverse impacts of water quality which contradicts the statements on p.4-38 concerning stratification and eutrophication as well as those on p.4-52 about these effects on reservoir fisheries.

55·6

5. Egerie Creek--the mitigation of the mitigation.

a. Sec. 4.3.8.2 says to see sec. 5.1.5 for details. Sec. 5.1.5 doesn't exist.

b. Sec. 5.2.2, 5.2.3, 5.2.4 imply that Egerie Creek can solve all the problems for lost wet lands, as well as fish and wildlife habitat. That's quite a boast for an area whose potential is "based on several brief site visits" (p.5-5,P2).

c. Just where on Egerie Creek will this magical transformation take place? No maps or legal descriptions are given. Who owns it? Is it for sale? p.5-5 P5 says $1.1 million would be needed to purchase private land. The only private land the Routt NF map shows is near 131 and the railroad tracks right in the middle of a large tract of private land south of Toponas. The rest of Egerie Creek is shown to be on BLM land also surrounded by private land. The nearest point of Egerie Creek to the Rock Creek site is 5 to 6 miles west or southwest with private land and a railroad in between. The confluence of Egerie and Rock Creeks is about 10 mi. from the reservoir site and 1800 ft. lower. Once you've improved the habitat there, how do you plan to get the elk there? Road signs? More haystacks?

55·7

d. p.5-7 P3 says "you'll fence the cows out. With private land on all sides doesn't that mean fences on all sides? That should help get the elk there.

e. p.5-4 P1 quotes $100,000 as the cost of habitat improvement. Where does that figure come from? Please give a cost break down.

55·5 We appreciate your comment. Please note in the SDEIS that the reservoir would not be totally dewatered and the fishery would therefore not be lost during dry years.

55·6 The section referenced concludes that a slightly eutrophic status in a reservoir at this elevation would not cause a significant water quality problem. The reservoir aquatics section indicates that the reservoir would provide a low to medium quality fishery, a beneficial impact.

55·7 As noted in Section 5.2 (DEIS and SDEIS), Egerie Creek area would mitigate wildlife and wetlands impacts, but not all of the fishery impacts. Details of lands under consideration as mitigation sites were not included in the DEIS due to concerns of private landowners and the Forest Service that this could cause problems in obtaining those lands in the future. It was determined that the sites were available for purchase. Additional detail on the mitigation site was included in Sections 5.2.2, 5.2.3, and 5.2.4 of the SDEIS.

Comment Letter 55

-4-

f. p.5-4 ¶1 says $75,000 will be needed to monitor the stream, the next paragraph says $5,000--some clarification is needed.

g. p.5-3 ¶2 says poor physical habitat and possibly a water quality problem prevent Egeria Creek from being a good fishery now. Present fish populations and flow characteristics are not even known. There seems to be a great lack of knowledge about the area and yet the DEIS indicates a great deal of confidence that Egeria Creek will mitigate all the problems created by the reservoir at Rock Creek. With the sketchy information given, I do not share that confidence. Egeria Creek comes across as a "token mitigation" of questionable value.

55·8 h. sec.3.7.1.2 ¶2 indicates wetlands "are considered unique and of great value to wildlife." This in combination with a "relatively limited distribution and areal cover" puts them under the protection of the Clean Water Act. I would hope that the final EIS would not just let this statement fall as the DEIS does. If protected then how can a reservoir be considered? A detailed explanation would be greatly appreciated.

i. in general you can play around with mitigation tracts all you like but where do the elk and deer and browns and brookies go in the meantime and how do you propose to get them back once Egeria is Ready? Egeria is a supposed mitigation for Rock Creek which is a supposed mitigation for Windy Gap. Since Rock Creek needs mitigation that makes it an impact in itself--not a mitigation for anything.

55·9 6. Grazing Both sites will impact grazing lands (sec. 3.11.1&2) Considering the plight of ranchers in Colorado it would seem that condemnation of even a portion of a rancher's deeded grazing lands or the elimination of any of the permitted grazing lands might just spell the end of a few more ranches (p.4-75 last ¶). Yet you plan to mitigate only the private land inundated or condemned for other uses with no study of the specific ranch operations involved and the total effect on their operation and way of life. I'm awfully tired of hearing "more rapid disappearance of traditional rural, social and cultural conditions would not be prevented by mitigation" (sec 4.4.15.3) because everyone seems to think it's a necessary result of unavoidable development. The development in this case is not necessary or unavoidable. It's just a matter of where you place your priorities.

55·10 7. Visual effects I don't understand the BLM method of establishing visual values and find no help in the DEIS. I do understand the USFS system. It was instituted a number of years ago as an attempt to place some sort of value on the visual characteristics of an area so you could weigh them against the impact of certain management activities to help decide when and where those management activities should or should not be allowed. The system came up with a classification of PR partial retention for the Rock Creek site and R retention for the portion of the reservoir site nearest route 134. p.4-60 states that construction would exceed the PR designation and mud flats near 134 would certainly exceed the R. Yet no mitigation is suggested--probably because none is possible and the question jumps out--what is the use of the VRS if it is not given any value in a pinch?

Response

55·8 The $75,000 cost was for monitoring Egeria Creek, the $5000 cost for monitoring Rock Creek below the dam. Please see Response to Comments 22-5, 37-1, and 37-2 for responses to your other comments.

55·9 We appreciate your comment. Considering impacts of the proposed reservoirs, in both cases sufficient forage is available in the federal allotments to allow the same amount of grazing as presently occurs. Hence, no reduction in the number of cattle or sheep that may be grazed would occur in either case. Some loss of grazing may occur on a Federal allotment due to proposed mitigation at Muddy Creek (please see the Muddy Creek mitigation plan).

55·10 The value of the Visual Resource Management system, or any visual resource system, from an impact standpoint is to show if the proposal is within the system. Since the system would not be met in this case, an unavoidable adverse impact would occur as discussed in Section 4.3.11.3 since mitigation, as you suggest, would not be possible. Unavoidable adverse impacts play a role in determining the Preferred Alternative.

Comment Letter 55

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8. Recreation

a. Developing recreation seems to be the panacea for all of Routt County's problems. It is not. And lake recreation is not the only valid form of water recreation, Sec. 3.13.1 describes dispersed recreation that, although increasing, is in relative balance with the wildlife, fish and general environment of the area. A reservoir would totally disrupt this balance. (sec. 4.3.12.1 ¶1 and p.4-71 ¶2). The question is, "is it worth it?" Sec. 4.3.12.1 and 4.5.4.3 indicate a possible conflict between Rock Creek, Stagecoach and Steamboat Lake Reservoirs for visitors. Here we have the classic T-shirt Shop/Chinese Restaurant Syndrome. How many of each used to be in Steamboat? For a long time none; for a while one each; and now that they've proven their worth there are 6 t-shirt shops and 4 chinese restaurants. People tend to steal a good idea, unknowingly ruining the chances of success for themselves and those they stole the idea from. A simple analogy and yet I wonder just how many lakes Colorado's tourists will support. Only time will tell. On the other hand, dispersed recreation in Colorado has been around a long time. The state is known for it and its economic worth, though not glorious, is evident. I don't think speculation on a relatively high elevation reservoir with poor fishing is much of a bet in comparison.

55·11 b. It is difficult to obtain a clear picture of the effects of this project on rafting both private and commercial. p.4-31 ¶3 and p.4-70 last ¶ and sec. 4.3.12.3 say Rock Creek will free up more Green Mtn. Res. water which in turn will allow more Dillon water to go to Denver via the Roberts tunnel thus decreasing flows and rafting on the Blue River. Sec. 4.3.3.6 says just the opposite. The confusion is well summarized on p.8-1 last ¶ where first you say Rock Creek won't dewater the Blue; then you say withdrawals controlled by the East Slope will leave too little water for rafting; then you say there will be no economic impact. Did you really mean to put all three statements in the same paragraph? On the same page? book? Detailed clarification is needed.

c. It's interesting how different disciplines look at the same situation. Take economics, cost/benefit analyses? p. B-2 ¶1 states, "it is likely that stream recreation sites will become more scarce in the future relative to reservoir sites, so that the loss of stream fisheries may be increasing in value relative to reservoir recreation." In other words, if we keep building dams pretty soon you won't be able to buy a good fishing stream because they'll all be gone.

55·12 9. Cultural--the stage stop

a. Please explain what being on the National Historic Register means if it doesn't protect a site from inundation.

b. In regard to p.4-72 ¶2, if the stage stop is this unimportant why keep bringing it up? If it is important its preservation should be taken somewhat more seriously.

55·13 10. Social p.4-74 ¶2 says "would ... not result in any ...overload of local service infrastructures." What about the nearby county and FS gravel roads? Every development attracting

Response

55·11 See Response to Comments 3-26 and 26-21.

55·12 Placing a site on the National Historic Register does not mean that the site cannot be moved, inundated, or otherwise impacted. It does mean that the values of the site must be determined and evaluated, and made available for public use in the future. Also, recent changes in the building due to human actions render the eligibility status of the structure questionable. Therefore, evaluating the site and determining what value it has from a cultural viewpoint may be sufficient mitigation under the laws governing cultural sites. The agencies involved (SHPO, USFS, ACHP), would make the final determination as to what mitigation would be undertaken.

55·13 As discussed in Sections 4.3.17 and 4.4.17 transportation impacts to either State Highway 134 or U. S. Highway 40 would be short-term during road relocation and dam construction. It is not anticipated that nearby county gravel roads would be significantly impacted.

Comment Letter 55

visitors adds washboards and potholes while the county unceasingly claims they have insufficient funds to maintain the road system as is.

11. Economics

a. Cost/benefit analysis: The annual sale of water to Denver would yield $3,750,000. I would like to know who gets that money; the River District; the counties; individuals? How can benefits be weighed without knowing who gets them.

b. p.B-3 ¶2 states simply that loss of grazing and big game herds would be mitigated and, therefore, no cost. I disagree that all wildlife impacts will have been totally mitigated.

c. What about the degradation of the visual resource as per VMS? What price do we put on loss of a scenic valley and canyon?

55·14 d. 4.6-75 ¶3 "Thus, while the effect of construction would be significant for a few individuals, it would be small relative to the total county activity. I agree.

e. More is expressed in the DEIS that reservoir recreationists would spend money locally. As concerns Routt Co., money spent by Rock Creek Res. visitors would probably be spent in Steamboat rather than to Rock Creek (would probably do the same resulting in a net loss for Routt Co. (e.g. 4-76 last ¶).

f. What cost do you place on loss of traditional rural social and cultural character?

12. Cumulative effects

a. Sec. 1.3 points out the most critical flaw in the present-day planning procedures for water projects in Colorado. The time when the displaced ais could simply move to the next valley is coming to an end. There are far too many existing and planned projects to ignore the cumulative impacts of each on the others. The study areas chosen for the two sites, therefore, are inadequate and of little meaning.

55·15 b. I have not yet had time to review the Metro Option Denver Water Supply EIS but figure 4.5.1 in this EIS (e.g. 4-141) is far from reassuring. If this map shows all projects considered then its value is questionable as it leaves out major existing projects (e.g., Dillon, Williams Fork, Blue Mesa et.al., Lake Granby, & Willow Creek to name some reservoirs as well as numerous ski areas. Also, table 4.5.1 is incomprehensible to me without further explanation.

55·16 c. How valid can it be to discuss Rock Creek and Muddy Creek as alternatives to mitigate Windy Gap when, if Rock Creek is built, a large reservoir may still be pursued on Muddy Creek? (sec. 4.5.4.8 ¶21.

A moratorium should be put into effect on all water projects proposed by the Denver Water Board and/or the Municipal Subdistrict until such time as complete water, fish, wildlife, recreation and economic studies of a scope sufficient to be valid can be completed and made available to those studying each individual project.

Response

55·14 The River District would receive the money from the sale of water from either reservoir. No cost estimate can be made for loss of visual resources or the rural character of an area. Wildlife mitigation would replace the values lost, although a very small economic loss could be attributed to wildlife impacts but it would too small to be significant to the counties or any other local entity.

55·15 The reservoirs now mentioned will were built prior to the formalization of environmental review. They are included in the cumulative analysis since they are included in the baseline flows shown in Table 4.3.1, but they are not broken out specifically.

55·16 A larger (100,000 AF plus) reservoir on Muddy Creek was considered but eliminated from detailed study (See Section 2.3.3.3 EDEIS). See also Response to Comment 3.1

Comment Letter 55

In conclusion; there is strong question whether the Rock Creek/Muddy Creek Reservoirs were truly intended to mitigate Windy Gap or are merely part of long planned manoeuvers by the East Slope to get more water through Roberts Tunnel and thus force the Twin Forks project. p.4-10 ¶2&3 indicate the use of these reservoirs in two schemes (Williams Fork to Dillon exchange and Green Mtn exchange) to obtain more water for Denver. It appears as though the East Slope plans on Windy Gap and one of these two projects and, as if that's not enough, an additional reservoir on Muddy Creek (sec.2.41, p.4-74, sec. 4.3.16.1 says it all in a nutshell: "The releases from the Rock or Muddy reservoir would likely never be used in the two-county area...." p.4-10 ¶4 mentions a report entitled "A Study of Water Development Procedures and Demand Projections in the Colorado River Basin in Colorado." And that's the last time I can find West Slope needs addressed in this DEIS. Something basic is lacking. If Rock Creek or Muddy Creek is to mitigate Windy Gap for the benefit of the Colorado River Water Conservation District then where is the detailed analysis and plan for that District's needs? Where are the alternatives to meet those needs listed? Not in this DEIS because this project is for the benefit of the East Slope.

55·17

Sincerely,

Jim Lavell
10/25/87

Response

55·17 The Purpose and Need section has been expanded in the SDEIS (See Section 1.2). The document referenced is not used as the basis for the West Slope demand in the SDEIS (See Response to Comments 2-3, 2-11, and 2-14.

Comment Letter 56

Stephen Lundy
810 St. Paul Street, Suite 310 • Denver, Colorado 80206
303-320-4327

October 19, 1987

Jerry E. Scheidt
Forest Supervisor
Routt National Forest
29587 W. US 40 - Suite 20
Steamboat Springs, CO 80487

RE: Rock Creek

Dear Mr. Scheidt:

56·1 I'm writing to voice my opposition to the Rock Creek Dam proposal.

Whee acceptable alternatives are available, like Muddy Creek, it makes little sense to destroy a healthy and productive trout fishery and tectsational stea.

The proposed altigetioe, Energie Creek, is an insult and is wholly unacceptable.

Muddy Creek aptly describes what it is io an overgrazed and abused valley and supports no fishety. How Rock Creek cae even be setiously considered is beyond me.

Pleeae do aot issue a peroit for the proposed Rock Creek Dam.

Very truly yoare,

STEPHEN LUNDY

cc: Cary Cargill
Al Collotzi

Response

56·1 Thank you for your comment. It wee considered in the eelection of the preferred alternative.

Comment Letter 57

Al Merlove
9371 W. Jewell Place
Lakewood, Coloredo 80227
303-985-2636
October 13, 1987

Jerry E. Schmidt, Forest Supervisor
Routt Nationel Forest
29587 W. US 40, Suite 20
Steamboet Springs, CO 80487

Deer Mr. Schmidt,

57·1 I attended the recent meeting on Rock Creek here in Denver end wish to thank you for the opportunity td express my opinion on the proposed Rock Creek dam. At the meeting, I expressed my opposition td e dam on Rock Creek. I elso seid thet I heve no opposition to e dam on Muddy Creek, es described in the Dreft EIS, elthough I do not support it, either.

In 1963, I moved my femily td Coloredo from Texes. In Texes, the only fishing experience we had wes on large reservoirs. The first few yeers I fished in Colorado, I sought similer types of fishing loceles, not being ewere of the potentiel quelity fishing evellable in Coloredo streams.

I discovered Rock Creek by accident in 1966 end heve been hooked on stream fishing since. My wife end I were eble td give our children an eoucetion in fishing in the Rock Creek eree. They leerned skills they still use in other ereas. After leerning to ectch fish on belt, they gredueted to spinners, and leter td fly fishing.

My concern is that smell streams like Rock Creek be preserved, undemeged end free-flowing. There ere few streams in Coloredo of similer size thet heve the quelity of fishing evelieble on Rock Creek.

57·2 The suggested mitigetion for the loss of Rock Creek, Egerie Creek, cennot be seriously considered. Even if the hebitet cen be improved, nothing cen be done about over-grazing upstream on privete lend thet is not pert of the mitigetion. After 10 or 20 years of hebitet improvement work, this stream will still not equel the loee of Rock Creek.

I heve studied the OEIS and feel it is comprenensive eno thorough. However, I heve found one section that I feel deserves further study. Heving e degree in geology, I wes interested in the geologic stuoy done et the proposed Rock Creek site and disagree with some of the stetements. On pege 3-3, in dimcuseing the geologic faults in the eree, it

Response

57·1 Thank you for your comment. It wee considered in the eelection of the preferred eiternative.

57·2 We eppreciete your comment. Additional studies were conducted on Egerie Creek to define its fishery mitigetion perentiel. These studies end their results are detailed in Section 3.2.3 of the SOEIS. Note thet the SOEIS egrees with your comment that Egerie Creek would not fully mitigete the loss of Rock Creek.

Comment Letter 57

states, "This fault trends across the Little Rock Creek Valley about 100 yards downstream from the proposed dam site." I have plotted faults in the area on a topographic map, using US Geological Survey map I-972 as my data source, which was compiled in 1976 by the late Ogden Tweto. His map indicates a system of faults related to the Gore Range uplift, a number of which directly underlie the proposed reservoir site.

57·3 Because Colorado is in a seismically active region, even though most activity is of low magnitude, I believe the potential for movement on these faults needs to be determined. In the late 1960's, the Derby Fault, in Adams County was made active by injection of waste water from Rocky Mountain Arsenal. Seismic activity was in the range of 4.0 to 6.0 magnitude on the Richter scale. What will happen in the fault system covered by the proposed reservoir? Will sufficient leakage occur to stimulate movement? Since this issue is not addressed in the DEIS, I feel it is a possible reason to disapprove a dam on Rock Creek.

I also evaluated the site proposed for the Muddy Creek Reservoir. The same map, I-972, indicates no faults that would be effected.

57·4 Another area discussed on pages 4-40 and 4-41 concerns water temperatures downstream from the proposed reservoir. Projected water temperature is stated to be 4 degrees C, or about 40 degrees F. In my years of fishing Rock Creek, I have recorded water temperatures in this section. Between Memorial Day and Labor Day, water temperatures can be expected in the range of 45 to 68 degrees F, considerably more than the 40 degrees F projected from the outflow. I have found fish feeding activity to be greatest at water temperatures in the range of 55 to 62 degrees F. The Frying Pan River, which has an excellent tail-water fishery, maintained a water temperature in August and September of this year of 48 degrees F. Based on my experience, a water temperature of 40 degrees F will not be conducive to a good fishery in this section of Rock Creek. My experience is in agreement with the DEIS on this matter.

57·5 Aquatic biology of Rock Creek is discussed on pages 3-67 through 3-70. Not discussed in this section is stream entomology. While I have not made a formal study of the insect life in Rock Creek, in my years of fishing, I have found several species of stonefly, mayfly and caddisfly in addition to the flies of the order diptera(mosquitos, midges, gnats and flies). All of these insects are important food sources for the trout in Rock Creek. Siltation during the construction of the Rock Creek dam has a high probability of being damaging to the stone- and mayfly populations. A quality fishery is dependent in part on a food supply for the trout. It is very likely that insect

Response

57·3 The presence of faulting in the foundation of the Rock Creek site has not been conclusively eliminated. Future subsurface investigations conducted during the design phase and excavation of the dam foundation during the construction phase could disclose the presence of faults at the Rock Creek site. Faulting alone, however, is not considered a "fatal" flaw. Many dams are build on faults with no adverse consequences. The possible presence of faulting in the dam foundation is considered an important design issue and would be addressed by future studies if the Rock Creek site were permitted. (See Supplementary Information to Section 3.2.2 in Chapter 2.0 FEIS).

Although reservoir-induced seismicity has been observed in association with a number of very large reservoirs, induced seismicity is not believed to be a significant problem at the Rock Creek and Muddy Creek sites. The DEIS (Section 3.2.3.6, page 3-8) addressed reservoir-induced seismicity:

> "Previous studies of documented cases of reservoir induced seismicity suggest reservoirs of at least 1,000,000 acre-feet total volume with water depths of 300 feet or greater located in actively extending geological terrain are most likely to be associated with induced events. The small size of the proposed reservoirs both in terms of depth (maximum depth = 175 feet) and volume (maximum volume = 50,000 acre-feet) suggest reservoir-induced seismicity should not be a significant hazard."

No evidence is available to suggest impoundment of Rock Creek reservoir will cause movement on mapped faults. The SDEIS lists Muddy Creek as the preferred alternative.

57·4 Thank you for your comment. It was considered in the selection of the preferred alternative. More definitive temperature data are included in the SDEIS (See Section 4.3.3.5).

57·5 Aquatic insects would not be significantly impacted by sedimentation during dam construction since the amount of sediment that enters the stream would be minimized by proper erosion control measures (see Section 4.3.3.5).

Comment Letter 57

habitat destruction will further deteriorate the Rock Creek fishery. This issue is not addressed in the DEIS.

The reasons discussed represent a few of the objections I have to the construction of a dam on Rock Creek. I request that you decide to deny a permit to build.

Sincerely,

Al Marlowe

Response

Comment Letter 58

A DATA CHECK
303 W COLFAX STE 101
DENVER CO 80204 22AM

1-0072191205 10/22/87 TWX ESL679(
TDWX DENVER CO

JERRY SCHMIDT
ROUTT NATIONAL FOREST
29587 WEST US 40 STE 20
STEAMBOAT SPRINGS CO 80487

58-1 FINISHED DEIS
PLEASE SUPPORT MUDDY CREEK

PAMELA MARTIN

14:36 EST

MGMCOMP

Response

58-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 59

Mr Jerry C. Schmidt 10/27/87
Forest Supervisor
Routt National Forest
29587 W. US 40 - Suite 20
Steamboat Springs, Co 80487

OCT 1987
Received
Area Ranger
Forest

Dear Mr. Schmidt

This letter is in reference to the proposed "Rock Creek / Muddy Creek Reservoir for which the Forest Service has recently issued a draft of the EIS. In the draft no preference is shown for one site over the other, and that is the purpose of this letter.

I am a sportsman and consequently spend quite a bit of my quality outdoor time in the Routt National Forest. I backpack and like, I feel, and enjoying to take up upland bird hunting. In this light it will.

59-1 I think, be easy to understand my preference for the Muddy Creek site as a reservoir, over that of Rock Creek.

It seems to me that the question of site selection, since the amount of water that would be available from a reservoir or either stream would be comparable, is a question of what would be lost and/or

Response

59-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 59

gained by the selection of one site over another. Let me present my view in this way.

Rock Creek	Muddy Creek
- to be gained if dammed 1. some water	- to be gained if dammed 1. some water 2. a new tailwater fishery (with good management)
- to be lost if dammed 1. a pristine valley with its own ecology of wildlife and beauty	- to be lost if dammed 1. an overgrazed, abused and currently dry valley
- required mitigation 1. the current plan for improvements on Igwa Creek is not adequate, it would require further improvements as well as improvements in other creeks to mitigate the loss of Rock Creek	- required mitigation 1. little or no mitigation is required, as the ecological systems in the valley have already been savaged. The area would probably show the effects of increased wildlife populations with a few years of the reservoir's completion

Please consider these thoughts in the decision making process on this issue.

Let us save as much of the natural beauty and ecology that currently exists as we can. Please recomend the Muddy Creek site as the logical preference for any reservoir.

Thank You,

David J. Mabey

Response

Comment Letter 60

Mr. Jerry E. Schmitt
Forest Supervisor
Rt. National Forest
29587 West U.S. 40
Steamboat Springs, Colo.
80487

21 October 1987

Dear Mr. Schmitt:

60·1 In regards to the Forest Service decision on the Muddy Creek or Rock Creek dam sites, we would like to go on record as being opposed to both dam sites. Neither site will benefit Grand County as they are too far to the West of the areas being "de-watered" and, consequently, would only serve to further dry up the Colorado River thru Grand County by providing replacement water down stream to augment further diversion in upper basin.

60·2 Our ranch, at the confluence of the Blue, Muddy, and Colorado Rivers, is short of water this year, and we fear even greater shortages in years to come as more and more water is diverted East across the divide and thus, lost forever to the Middle Fork Valley and points West. We would like to see one or more of the proposed resetvoirs built in the East end of Grand County so that the released water would travel the whole length of the Colorado River and benefit everyone along the way.

60·3 However, if it comes down to a choice of having to build one or the other, Muddy or Rock Creek, we would ask that you approve the Muddy site, as it will benifit at least a small part of Grand County. The present Muddy valley site near Kremmling is an ugly place which a reservoir could only improve whereas the Rock Creek site is beautiful and environmentally productive area which should not be inundated.

Sincerely,

Mr. & Mrs John McElroy
Box 215
Kremmling, Colo. 80459

60·4 P.S. We were told that the original proposed Azure dam was to have hydro electric generating facilities. No mention has been made that either Muddy or Rock Creek dams have hydro-electric capacity. We firmly believe that no dam should ever be built in this country again without electric generating capabilities.

Response

60·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

60·2 With Williams Fork Reservoir, Denver has the ability to fully utilize their diversions upstream of Kremmling. Therefore, the proposed project will not impact the referenced reach of the Colorado River. The project will not impact the Fraser River basin (See also Response to Comments 6-1 and 48-3).

60·3 Thank you for your comment. It was considered in the selection of the preferred alternative.

60·4 Current plans for the Rock Creek site and the Muddy Creek site do not include a hydroelectric facility.

Comment Letter 61

Glen A. Miller
2264 Willow Wood Rd.
Grand Junction, CO 81503
November 9, 1987

Mr. Gary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 W. 8th Ave.
Lakewood, CO 80225

Re: Rock Creek/Muddy Creek DEIS, 8/87

Dear Mr. Cargill;

I appreciate the opportunity to review the above DEIS, and especially appreciate the extension of the comment period to 11-9-87.

My comments, as noted below, are both of a general nature and specific to pages in the DEIS.

GENERAL COMMENTS

61·1 1) The discussion of potential water quality affects on downstream water uses is disappointing. Perhaps this is due to the lack of water-quality input as listed in 6.0. The referenced CWB-DEIS (1986) was also lacking in such a discussion. Cumulatively, these upstream projects will without doubt adversly effect the water quality available to downstream agriculture, industry, and municipalities. These users deserve to be given a technically valid best estimate of the quality of their future water supply, as do the decision-makers involved in the NEPA process.

61·1 2) It appears that "exchange water" from either site, but in particular from Muddy Creek, will not be of as good quality as the current releases from Green Mountain Reservoir. For example, Green Mountain release water appears to contain about 100 mg/L TDS; Rock Creek Reservoir outflows may contain about 200+ mg/L TDS; Muddy Creek Reservoir outflows may contain more than 500 mg/L TDS. The Green Mountain outflows include the effects of reservoir evaporation and reservoir bottom leaching. The Rock Creek/Muddy Creek estimates do not. Neither of these inevitable and widely recognized processes that degrade reservoir water were discussed in the DEIS.

3) In contrast, the DEIS uses such terms as "insignificant" and "not measureable" to describe the downstream water quality affects, without supporting data or discussion.

4) The final EIS should contain an analysis of project effects on water quality in the Colorado River, both in terms of "average" affects and more importantly in terms of worst-case conditions. These latter conditions could be expected to occur during extremely dry years and during two or more dry years in sequence. The analysis should include projections on outflow quality and on quality at downstream sites (e.g. Dotsero and Cameo). What is needed is a series of standard hydrologic projections on frequency/quality (i.e., 7-day, 14-day, 30-day, and 60-day periods with recurrence intervals of 5, 10, 25, 50, and 100 years). Only with this type of analysis can downstream users plan and prepare for unusual conditions.

Response

61·1 The water quality discussion has been expanded in the SDEIS (See Section 4.4.3.5 and Response to Comments 11-4 and 14-3).

Comment Letter 61

DETAILED COMMENTS

61·1 1) Pg. iii. The scope of public issues includes concerns about both water quality and salinity in the Lower Colorado. Neither of these issues is adequately addressed in the DEIS.

61·2 2) Pg. v. The yield of 17,000 AF/Yr needs to be clarified in the text (see p. ii), in that probably 90% will be credited against less released water from Green Mountain Reservoir.

61·3 3) Pg. vi, viii. Neither summary lists water quality impacts. No water quality impact is not a reasonable expectation of such projects, especially for Muddy Creek. This comment applies also to table 2.7.1, p.2-34.

61·4 4) Pg. 3-34. The lengthy discussion on projected channel changes concludes with almost no useful information. The DEIS should include an empirical evaluation based on observed effects at other reservoirs (e.g. Green Mountain, Dillon). Note that p. 4-15 concludes that the procedure is questionable because fundamental assumptions are not valid.

61·5 5) Pg. 3-40. What do the numbers mean in table 3.4.8? Are they long-term means? Flow-weighted averages? Or what? The word "characterization" in the title is misleading unless the numbers clearly relate to a usable and defined statistic.

61·6 6) Pg. 3-43, Table 3.4.9. What is Mg/Yr? This table is of little use or even confusing to the reader without an explanation of what units the numbers represent.

61·7 7) Pg. 3-44, par. 5. Suggest you use "exceedances" or some such term instead of "violation" (see also p. 3-47, par. 7).

61·8 8) Pg. 3-47, par. 1 and Table 3.4.11 (also see comment 6 above). The reader needs consistent treatment of similar data in order to compare the two sites.

61·9 9) Pg. 4-41, par. 1. The conclusion of "insignificant" water quality impacts below the dam is not supported by data and analysis.

61·10 10) Pg. 4-109, par. 3 (see #9 above). The conclusion of "no measureable changes in water quality or salinity in the Colorado River" is not supported by data or discussion. In fact, the available water quality data and the geologic discussion in the text indicate otherwise. Evaporation from the reservoir and leaching from the reservoir bottom are not mentioned. In USGS-WSP 2058, studies showed that leaching from rocks beneath Flaming Gorge Reservoir (Utah) increased salinity by about 20% above inflow/evaporation effects. The shale bedrock of Muddy Creek could result in similar changes. Evaporation from either proposed reservoir could readily increase TDS by several percent. These near-certain adverse impacts need to be presented for public review and comment. The entire downstream user community has an interest in water quality, and the DEIS is silent or even misleading on this subject.

Sincerely,

Glen A. Miller
Consulting Geohydrologist

Response

61·2 The average annual yield of 17000 AF represents water available for use in the reservoir. Under the East Slope (short-term) demand the amount used and the impact on Green Mountain Reservoir will depend upon demands under the River District - Denver Lease (See Response to Comments 11-1 and 21-10). In any event, downstream water rights senior to the proposed project or exchanges will not be impacted.

61·3 The summary table referenced is not included in the SDEIS. Table 2.7.1 of the SDEIS lists no significant water quality impacts at Rock Creek but does list potential impacts at Muddy Creek which would require mitigation. See expanded water quality discussion in Sections 4.3.3.5 and 4.4.3.5 SDEIS. See also Response to Comments 11-4, 14-3, 14-5, and 14-6.

61·4 Section 3.4.2.1 (DEIS) provides an Existing Environment description of the Rock Creek channel in the context of the USFS channel maintenance flow methodology, which was required by the USFS for Rock Creek. This forms the basis for the evaluation of channel maintenance flow requirements after construction of the proposed reservoir.

While it would not be appropriate to include an impacts assessment in the Existing Environment section of an EIS, a good description of observed effects at other reservoirs can be found in USGS Professional Paper 1286, Downstream Effects of Dams on Alluvial Rivers. While case study data from other reservoirs is informative, an assessment must be based on the site specific stream characteristics and proposed reservoir operations of the site in question. As far as can be determined, channel response data for the Blue River below Dillon or Green Mountain Reservoirs are not available.

For the Rock Creek analysis the USFS procedure was modified to permit its application to the post-dam environment (See Section 4.3.3.2 SDEIS).

61·5 These numbers represent arithmetic means of the number of samples available during the period of record. The data presented are not flow weighted.

Comment Letter 61

Response

61·6 The units Mg/Yr are Megagrams per year. The abbreviation is commonly used and it was assumed that no explanation was required.

61·7 Thank you for the suggestion.

61·8 The statistical distribution of the available water quality data determined the method for calculating mean concentrations and fluxes.

61·9 The water quality section of the SDEIS has been expanded to include the concerns mentioned (See Section 4.4.3.5 and Response to Comments 11-4 and 14-3). An evaporation study was completed for both reservoirs (See Response to Comment 14-3).

61·10 The water quality discussion has been expanded in the SDEIS (See Section 4.4.3.5 and Response to Comment 11-4). The potential impacts of evaporation from the reservoir have been evaluated (See Response to Comment 14-3).

Comment Letter 62

Response

August 3, 1989

Dear Mr. Schmidt

I have read much of the DEIS report of the proposed Rock Creek and Muddy Creek reservoirs.

62·1 I think the trout habitat in Rock Creek is too valuable to be lost by creating a dam. A dam on Muddy Creek would be a better choice of the two, in my opinion, although I am against both impoundments.

Sincerely,

Clara Mahlmann

62·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 63

Sirs:

63·1 I support the Rock Creek Dam. I own the Eagle Rock Inn Restaurant and Gallery in Yampa Co. I am working with several other business people to build a tourism industry in South Routt county. We realize that no single item is going to bring instant success. The new Stagecoach Reservoir and State Park will be a shot in the arm for our economy. When it opens and Catamont Lake and Ski Resort is completed Colorado routes 134 and 131 will be the southern access to over 20 miles of recreation based community and industry. A dam and reservoir on Gore Pass can only add to our tourism base. In a few weeks we will be begining a major promotional campaign for South Routt amongst various state agencies and the state tourism board.

I attended the public meetings in Steamboat and Yampa and really could find no reason to object to the Rock Creek Dam or favor the Muddy Creek site. I have heard that there is a bunch of lawyers in Denver who would like to keep Rock Creek as their private resort. I have dealt with tourists in this area since February of '86. I have not yet had a single inquiry about Rock Creek. Even the long time residents snicker when they hear how great Rock Creek is. Whoever the secret lawyers are they have done a fine job of keeping Rock Creek a secret. They didn't come to the meetings that I attended and they sure haven't supported the businesses in South Routt. The most often asked for destination is Trappers Lake. We will soon change that to Stagecoach State Park. A lake will generate much more usage than a stream ever will and it will support a lot more fish. They claim that a 2½ pound trout is a big fish for Rock Creek but a tourist caught a 17 pound trout in Bear Lake this spring. The only thing that will be lost at Rock Creek will be the privacy of a few outside lawyers.

The Muddy Creek site, as far as I can find out, will basically become a mud puddle and silt up in a very short number of years. Nobody around here needs or wants a mud puddle. The people who live there that I have talked to are not in favor of it either.

63·2 I object to seeing money wasted and for the writers of the Environmental Impact Study to be suprised that water from Yamcolo could flow into Egeria Creek and thus into the Rock Creek Dam is inexcusable. It destroys their credibility. This problem should be addressed and limits set before construction is approved. I think they should have talked to the business people in the area about the impact that it

63·3 will haveon our economy. They would probably also be suprised to learn that there are tourists in South Routt. The writers should be required to spend time enough in South Routt to do the job they were paid for.

My business has been too busy for the past several months for me to have time to spend on this project. As it slows down in the next months I hope to get more involved.

Thank you for your time and attention.

Diane Hewett
P.O. 77
Yampa Co 80493

Response

63·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

63·2 The writers recognized that it would be possible to import water from Yamcolo to the Egeria Creek basin, but the Rock Creek mitigation plans for Egeria Creek did not depend on using any Yamcolo water. Mitigation plans as outlined in Section 5.2 SDEIS would be accomplished with native water supplies in the Egeria Creek basin.

63·3 We appreciate your comments but believe the analysis presented is accurate.

Comment Letter 64

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

Dear Sir:

64·1 We are opposed to the Fact Creek Reservoir site for the following reasons: First, there are three flatwater recreation areas in the immediate vicinity of the Rock Creek site: Stillwater, Yamcolo and Bear Lake with Stagecoach and Catamount nearby and Steamboat Lake, Pearl Lake and Mahn's Fork Lake more distant. No reasonable argument can be made to support another such reservoir for recreation purposes; indeed, it is projected in the Draft EIS that the Rock Creek Reservoir would probably simply compete with the existing reservoirs in the area. And in extremely dry periods there would be no waters at all in the Rock Creek site since the reservoir would be dry and take "several years" to refill.

Although the number of flatwater recreation areas increases statewide throughout the state there has been a steady loss of quality stream fisheries. The Rock Creek Reservoir would replace 13 miles of high quality trout stream with a "low to moderate" quality reservoir fishery. In contrast, Muddy Creek Reservoir could potentially provide a "moderate" fishery in the reservoir and create a "tailwater fishery downstream," to quote the Draft EIS. At present Muddy Creek supports no game fisheries.

Through de-silting, the Muddy Creek Reservoir might improve the quality of the water entering the Colorado River, and the proposed wetland and wildlife mitigation for Muddy Creek Reservoir would certainly improve the lands in the area, which are in poor condition now. Further, if the proposed Muddy Creek Reservoir were built, it might preclude the construction of a larger reservoir there, which, according the the Draft EIS, would have significant impact on wildlife, wetlands and rare plants that could be "very difficult to mitigate." In addition, the Muddy Creek alternative promises to offer "more direct cumulative benefits to the economy of western Grand County than Rock Creek would to either Grand or Routt Counties," to quote the Draft EIS again.

64·2 Mitigation, seen always to represent a loss in either quality or quantity or both. The Egeria Creek mitigation plan is no exception. According to the Draft EIS it might provide only 50-75% of the loss of wetlands and wildlife habitat. And there remain some questions about where the water for wetlands creation is to come from. Egeria Creek itself? Or, indirectly, from the Yampa? To accept mitigation that represents only 3/4 or even just 1/2 of previous habitat is to support the insidious increase in permanent losses occuring statewide and nationwide.

In conclusion, although the Muddy Creek site is preferable to the Rock Creek site, our preferred alternative is no dam at either site, since there is some question whether Two Forks would be needed at all if water conservation were seriously practiced on the East Slope.

Sincerely,

Katherine Ilbuton
Gerald S. Hollinsworth

Response

64·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

64·2 The 50 to 75 percent figure noted on p. 5-3 of the DEIS referred to mitigation of fishery habitat only. Wetland and wildlife mitigation was near 100 percent. Water for the mitigation would come from Egeria Creek through water rights that would be purchased with the land under consideration. Please see Section 5.2 in the SDEIS for more information on the Egeria Creek mitigation site.

Comment Letter 65

Kremmling, Colo 80459
October 2, 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, Co. 80487

Dear Mr. Schmidt,

In reference to the Muddy Creek and Rock Creek dams I would like to make my comments.

65·1 I would prefer the Muddy Creek because I feel there would be less environmental impact since the area is mostly a sage brush area. And not a great amount of ranching land. I'm sure the deer and elk could be injured but it seems to me there would be plenty of area to the east of the dam site. Water flowing from that dam into the Colorado would be of great benefit to the Rafting industry in the Gore Canyon Area. The chances of a larger dam on the Muddy may be many years away and probably never. So I feel keeping the water in Grand County now is vital. If in years to come a larger dam is needed it can be added very much like the Gladaux Mtn. Lake Granby project. Rock Creek is a beautiful accessible area as is. And the lake would be pretty and access to recreation. It's just a shame to spoil the natural area. Water flowing into the Colorado would not benefit Grand County at all. And it is my understanding that this was to replace water taken

Response

65·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 65

for the Windy Dog project-
Either dam makes a big environmental
impact - but Grand County needs
a deep water in the Colorado River for
the fishing, rafting, irrigating etc...
Then it goes on down the river to
service the people on down stream.
Thank you for your time and
consideration of my comments.
I will be out of town on Oct 7 when
hearings are held in Kremmling
so felt it a must to write.

Sincerely
Bernice Crockett
PO Box 156
Kremmling, Colo 80459

OCT 1987

Response

Comment Letter 66

September 30, 1987

Dear Jerry Schmidt,

I will be out of town for the public meeting on the proposed R
Creek Reservior, so please accept my comments in this written
form.

66·1 I am opposed to building the Rock Creek Reservior because it would destroy 9 miles of highly productive trout fishery.

The alternative site, aptly named Muddy Creek, which is situate
a dry, over-grazed and abused valley, has no great recreational
value. Reservoir releases of cold, clearer water may even
create a tail water fishery at that site.

The proposed Egeria Creek mitigation site is unacceptable. The
cost and time required to renovate this degraded area is too
great, and private ranchland and grazing above the site
undermines attempts of renovation.

Why destroy something of high value when a less environmentally
damaging alternative is available?

Thank you for recording my comments in the public record.

Sincerely,
Charla Palmer
Charla Palmer

Response

66·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 67

Oct 12, 1987

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. US 40 - Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt,

It has come to my attention that your offices are seeking public input on the decision to build a dam on either Rock Creek or Muddy Creek and it is also my understanding that the expected costs, operation and yields would be similar for the two projects.

Here is then an ideal opportunity to put environmental concerns at the top of the list for a change. I have never fished Muddy Creek due to its inaccessibility as a very poor fishery whereas I have fished the Gore pass area and around Rock Creek. It would be a terrible waste to have such a wonderful environment when a very adequate alternate is available, being a good fisheries fishery would result from such a project on Muddy Creek.

I also understand that the draft EIS indicates that Muddy Creek would require 4 Ha in the way of mitigation, whereas Rock Creek would be difficult to mitigate.

67.1 In conclusion, if a dam and reservoir are truly needed, build it on Muddy Creek, not on Rock Creek.

Thank you for the opportunity to provide input on this matter.

Al Permut
Al Permut
906 W. Elder, Craig, Colorado 81625

Response

67·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 68

9 November 87
Toponas,CO 80479

TO: Jerry E. Schmidt
29587 W. US 40 Suite 20
Steamboat, CO 80487

68·1 I support the Rock Creek site but take exception to Chapter 5. The dam should be built without mitigation involving the removal of land within the private sector and being placed into the public domain.

My family has lived in Routt County for 5 generations. We continue to co-exist despite the encroachment of civilization. We accept the findings of the court that the users represented by the Denver Water Board may build a dam in Routt County so the citizens of the front range metro area may enjoy the highest possible comforts accorded to that society. We accept the stewardship of the USFS as they determine the use of public lands and appreciate this opportunity to comment on the EIS statement concerning Rock Creek.

68·2 Section 5.2.2 - Traditional use of land in Beerie Park has ruined the riparian habitat; therefore, this land should be acquited for mitigation. These statements reflect the concerns of the bureaucratic environmentalists that compel the various co-operating agencies to satisfy their concerns through marketplace acquisition or condemnation proceedings. I do not believe private property should be sacrificed for mitigation. The thousands of people who benefit from the storage constructed on public property could identify lands for mitigation on the front range instead of removing 2100 acres of private domain in Routt County.

Section 5.25. The authors of the EIS identifies a loss of eleven per cent (11 %) grazing capacity on the Blacktail permit. However, this portion reflects an intent to restore the lost capacity.

The needs of the thirsty people are met, the private land is acquited: now it is proposed that the permittee on public land is injured and should be compensated. I disagree.

Let us reflect. Many historians attribute the building of the west to the policy of open lands that became generally known as Manifest Destiny. The vast majority of land from the Atlantic Ocean to the Rocky Mountains became lands within the private sector. However, Theodore Roosevelt created the national forest system to provide solitude and beauty for all Americans. In Routt County the Forest Service administers 146,347 acres, the BLM 76,402 acres, the State of Colorado 63,373 acres, and other State of Colorado agencies 5,466 acres. In other words, John O. Public owns forty-nine percent (49%) of the 1,481,840 acres known as Routt County. Some states limit the

Response

68·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

68·2 We appreciate your comment.

Comment Letter 68

land to be governed by both state and federal agencies. For example Indiana statues specify that such land may not exceed twenty-three percent (23%) in any county. Surely John Q. Public possesses a property that can mitigate the wetlands and expand the productivity of his land rather than removing 2100 acres from the private sector in Routt County.

Sincerely,

Charles F. Parry

Response

Comment Letter 69

Box C
Toponas, Colorado 80479
October 19, 1987

Mr. Jerry Schmidt, Forest Service Supervisor
Routt National Forest
29578 West US 40
Steamboat Springs, Colorado 80487

In re: Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

First, a comment on the Draft Enviromental Impact Statement: All who had anything to do with this study should be complimented on the format and the materials presented. It is informative and easily understood.

69-1 As a rancher in the Toponas area, I wish to go on record as favoring the Rock Creek site.

South Routt County desperately needs an economic "shot in the arm" which this project would give, especially since the Stagecoach Reservoir has begun.

The water rights have been obtained and the money is available. Why wait twenty-five years? It is much wiser to keep the water in Colorado whether it is used on the eastern or western slope rather than being used in the Lower Basin States for the greening of their deserts.

In my opinion, the fishing would be better as a result of the reservoir. The best fishing is not in the streams easily accessed, but in both Rock Creek and Eagle Canyons.

Thank you for the opportunity to comment.

Yours truly,

Mary Jean Parry

Response

69-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 70

26 October 1987

Rex Peterson
Box 181
Yampa, CO 80483

Mr. Jerry Schmidt, Chief Forest Supervisor
Routt National Forest

RE: Proposed Rock Creek and Muddy Creek Resevoir Draft Environmental Impact Statement

Dear Mr. Schmidt:

I have had the opportunity to review the draft environmental statement for the proposed Rock Creek Resevoir and the Muddy Creek Resevoir.

70·1 I object to the Rock Creek Resevoir as proposed since the conservation pool is less than 10% of the resevoir capacity. Much of the year a large mud flat would be the recreation amenity for the adjacent campground and the scenic highway across Gore Pass. Either the resevoir should be greatly increased to permit an adequate recreation and conservation pool, or the Muddy Creek site is preferable.

70·2 The discussion of the Egeria Park wetlands mitigation proposal seems quite naive. The old timers, including area pioneers, do not remember Egeria Creek ever supporting willows or a wetlands type environment. The gravely soils are very difficult to irrigate indicating that the "poor" quality wetlands are naturally "poor quality". Expansion of the Muddy Creek wetlands over clays and shales would be preferrable to this solution.

70·3 Rumor in South Routt claims a diversion of Yampa River basin water is required for the Egeria Park wetlands although the draft statement does not address this issue.

Thank you for the opportunity to express my concerns with the proposed Rock Creek Resevoir.

Sincerely,

Rex McKim Peterson

Rex McKim Peterson

Response

70·1 Revisions to proposed reservoir operations and the increased size of Muddy Creek Reservoir for the SDEIS have eliminated potential encroachment on the 4000 AF "conservation pool" for the period of record analyzed. Minimum reservoir storage volume during the period of record would be greater than 10,000 AF for both reservoirs (See Figures 4.3.3.3 and 4.4.3.4 SDEIS and Figures 1.4 and 1.6 FEIS).

70·2 Considerable evidence occurs in the Egeria Creek valley that shows that willow was the native riparian vegetation. This can be seen in adjacent areas that are less intensely farmed, and in a small area along the creek that has been fenced from grazing or haying for many years.

70·3 The rumors were incorrect (See Response to Comment 63-2).

Comment Letter 71

14945 East Mexico Drive
Aurora, Colorado 80012
October 16, 1987

Ed Ryberg
Routt National Forest
29587 West U. S. 40
Steamboat Springs, Colorado 80487

Dear Mr. Ryberg:

I am writing to you concerning the Rock Creek / Muddy Creek Reservoir proposal. After attending the public meeting in Denver on October 6, and reading the Draft Environmental Impact Study, I would like to voice my opinions.

71·1 The proposed reservoirs are planned due to potential impacts to western Colorado water users, and will supply water to Denver for 25 years due to potential projected water needs. It does not appear to me that these are solid reasons to build a dam at this time.

71·2 The timing of the need for this water is not clearly addressed anywhere that I could find in your studies. Also, I would like to emphasize that if the projections for Denver's water needs are based upon 1985 or 1986 studies of population growth, I would recommend that this be scrutinized very carefully. Based upon studies during these periods, growth was enormously over estimated and has resulted in huge numbers of vacant residences, offices and retail space. During 1987 it has become obvious that growth will be at a much slower level than everyone projected even in 1986. I personally have witnessed this phenomenon since our company builds and manages apartments, and is experiencing very difficult times due to basing our construction on earlier population growth projections.

As the need for the water is clearly within the time frame necessary to build a dam and deliver the water to the users, then a dam should be built. Why spoil a wonderful fishing stream like Rock Creek now when it could be enjoyed for many more years? Why build a small dam on the Muddy when a larger one is much more logical when the time is appropriate?

71·3

71·4 I do not see the logic in building a dam only because a $10,000,000 legal award has been made. This money could be invested at an

Response

71·1 The Purpose and Need sections have been substantially rewritten for the SDEIS (See Section 1.2). The short-term need is discussed in Section 1.2.3.2 and the long-term need is discussed in Section 1.2.3.3. The purpose of the proposed project is mitigation for the Windy Gap project which has been constructed (See Section 1.2.2 SDEIS).

71·2 The most current demand and population projections from the Metro Denver Water Supply System-wide EIS have been used in the SDEIS (See Section 1.2.3.2. SDEIS).

71·3 A larger (60,000 AF) reservoir on Muddy Creek is the preferred alternative analyzed in the SDEIS. A much larger (100,000 AF plus) reservoir was considered but eliminated from detailed study (See Section 2.2.2.3 SDEIS).

71·4 The Azure-Windy Gap Agreement and Supplemental Agreement specify the uses to which the cash payment may be put. The Agreements were reviewed and approved by District Water Court (See Sections 1.3.2 and 1.3.5 SDEIS).

Comment Letter 71

excellent rate of return and be used more effectively in the future when the water storage is truly needed.

As for Rock Creek as a dam site, I wish it would never be necessary, but I realize that over the years the growth in Colorado will necessitate its construction. As for now, I think the stream should be preserved as long as possible, even if it is another 2, 5, or 10 years. It is a great fishing stream for fly fisherman. My childhood in Pennsylvania introduced me to the pleasure of fishing small streams. I have fished the Blue River, Crystal River, Taylor River, Colorado River and other large streams, but they have not provided me with the consistent satisfaction and pleasure as I have had on Rock Creek. On Rock Creek, I can always catch trout. I do not find pleasure in catch and release, I go fishing to catch and eat. Rock Creek has never failed to provide me with an excellent trout dinner in 15 years.

My feeling is that it is not absolutely evident that there is an eminent need for the water from either reservoir within the near future. When this need arises, larger dams in either location may make much more sense. The $10,000,000 legal mitigation funds can then be better utilized to help provide for the larger dams. Therefore, I submit to you that neither reservoir should be built at this time.

Thank you for taking the time to consider my thoughts and opinion.

Sincerely,

James B. Phelps

Response

Comment Letter 72

Jerry E. Schmidt, Forest Supervisor Oct. 24 1983
Routt National Forest

72·1 The Rock Creek Reservoir is not a viable project based on real needs now or in the near future nor is it justifiable in the face of the existing resources its construction would diminish or destroy.

72·2 The EIS does not give adequate mitigation measures for the loss of riparian habitat. The Egeria Creek mitigation plan is fanciful, as are all of its nature, in that by destruction of an existing riparian zone it supposedly replaces the loss of another. Rock Creek is a natural water course that by the nature of its myriad interconnecting parts, i.e. topography, climate, biology, geography, etc. provides an ideal habitat for trout and other attendant life. Scarcely imparting these valuable resources must be viewed critically.

Weighed in the balance also is the wildlife habitat that would be impaired both by construction and by increased traffic in the area that a reservoir would draw. The scarcity of like interested grass and riparian habitat in the general area of the project segments increases its value for wildlife populations and diversity.

The Muddy Creek site is another example of a very

Response

72·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

72·2 As discussed in the DEIS and in more detail in Chapter 5 of the SDEIS the present riparian system along Egeria Creek is in very poor condition, and only after intense management to restore the riperian system will it be suitable for mitigation of Rock Creek impacts. For more detail, see Section 5.2 of the SDEIS.

Comment Letter 72

72-3

important and valuable riparian zone that lends itself to the socio-economic make-up of the existing communities and would be severely impacted by reservoir construction. The EIS accurately describes how important the site is to a diverse group of plants and animals but doesn't have adequate mitigation measures.

Given the values present naturally at the Muddy Creek reservoir site and the lack of demonstrated need for the project it behooves responsible stewards of the resources to choose the No Action alternative.

Sincerely,
John A. Rumpfelt
Box 981
Steamboat Springs, Colo.
80477

Received
[illegible]

Response

72-3 See Response to Comment 72-2.

Comment Letter 73

11620 C.R. 251
Salida, Co. 81201
October 21, 1987

Jerry Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 40
Steamboat Springs, Co. 80487

73-1

As an avid Colorado fisherman I would like to express my opinion on a choice of sites for the Rock Creek/Muddy Creek Reservoir. I feel strongly that the dam should go on Rock Creek. In fact, it is difficult for me to see why anyone would choose to destroy the fishery on Rock Creek when there is another site available that might even benefit from the dam and reservoir.

Of course, this is a purely selfish letter. I would like to fish Rock Creek again in the future and know it is a resource that may be available for my kids to fish. I hope you give this option serious consideration.

Respectfully

Fred Rasmussen

Response

73-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 74

Jerry Schmidt
Routt National Forest
20587 West U.S. 50, Suite 20
Steamboat Springs, CO 80487

November 9, 1987

Dear Mr. Schmidt,

74-1 After careful review of the Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir, I would like to recommend that you support the no-action alternative. I feel that the purpose of the reservoir (fulfilling the Green Mountain potential, facilitating development of water above Shoshone for contract sale and, particularly, providing water for West Slope ski industry) do not justify the extensive destruction of valuable riparian wetland habitat and high quality trout stream, both of which are severely threatened habitat types in this state. The mitigation measures seem grossly inadequate. For Rock Creek, the enhancement of 500+ acres of existing wetlands to mitigate the loss of 406 acres of diversified, albeit stressed, wetlands seems a very poor tradeoff, regardless of the HU's and HSI's. Enhance-

74-2 ment measures are not described but would apparently involve some contrived flooding system, requiring maintenance, possibly leading to salt loading, and not providing the diversified, stable ecosytem of the displaced naturally occuring wetland, at least not in the near future. I am particularly concerned about the loss of streamside wetlands.

I would also like to express my concern about the disturbance of the historic Rock Creek Stage Station, listed in the National Register of Historic Places. Moving the station would destroy the integrity of the stage line route being recognized in the register.

Thank you for the opportunity to comment on this project. I commend you on your efforts to anticipate and mitigate impacts. I hope in this case they can be prevented.

Respectfully,

Claudia D Rector

Claudia D. Rector
3227 D Road
Clifton, CO 81520

Response

74-1 Thank you for your comment. It was considered in the selection of the preferred alternative.

74-2 For more information on the proposed mitigation area and the effectiveness of mitigation please see Section 5.2.2, 5.2.3, and 5.2.4 of the SDEIS.

Comment Letter 75

Grand River Ranch
P.O. Box 172
Kremmling, CO 80459

Mr. Gary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 West 8th Avenue
Lakewood, CO 80225

Dear Mr. Cargill:

This letter is written to you, as the responsible official of the Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir, to correct what I believe to be an important error and omission in that report.

First, by way of background, I have been the owner for more than a decade of the Grand River Ranch which contains the largest portion of the land to be taken by the Muddy Creek dam. This ranch is mostly in the Muddy Creek drainage with some spill-over into Jackson and Routt Counties. It is, I believe, the largest mountain ranch in Colorado and carries in excess of 5,000 head of cattle in the winter and more than 7,000 in the summer. It directly supports 15 families and is a major supplier to the beef feeding and packing industries in Colorado.

The ranch has a distinguished history, having been put together by Mr. Fred DeGerard between 1915 and 1957. Under his ownership the leading blood line of the Hereford breed was developed on the ranch. Many years from 1929 to 1957 the ranch won more first prizes for feeder cattle in the four major stock shows, Denver, Chicago, Omaha, and Kansas City, than all other ranches in America put together. The ranch is headquartered today as it has been since 1929, one mile northwest of Kremmling.

I relate all of this because it is relevant to what you propose to do on the Muddy. The productive bottom lands that you would take produced this year (a short crop year) more than a half million pounds of hay which are necessary to winter cattle. It is simply not economic in the competitive agricultural world of today to buy and import hay from somewhere else. So we would end up with an unbalanced ranch with more summer pasture than essential winter feed.

But the hay problem, as important as it is, is not the worst of it. These bottoms slope toward the south, to the low winter sun and are protected from the cold northwest winds by sizable bluffs (as is pointed out in your report). This is where we keep our herd replacement heifer calves over the winter and where we bring cows when they are ready to give birth in the spring. There are no other such places on the ranch where we can move these operations.

We have two home sites that would be directly affected. The one that would be submerged is a restored log cabin originally homesteaded by the Fitch family. Within the last six or seven years I have constructed also a modern calving barn and a machinery storage and tool shop there. At the other location, homesteaded by the Sinner family, I have built a good new house (the old one was beyond repair), along with new corrals, a calving barn

Response

Comment Letter 75

Mr. Cary Cargill
January 4, 1988
Page 2

and a machinery building. In both places I have put utilities underground for the esthetic value. Both homes are and have been permanently occupied year round by people whose families go back to the pioneer days of West Grand county. I relate this because your report (page 3-105) says: "At present both are used to provide temporary housing of ranch hands and as seasonal operations bases for large ranches headquartered elsewhere." That statement may be partially true in that we are headquartered four miles away.

75-1

I am not writing you this letter to try to stop the dam. I know that the people making the decision will put it there if they want to, whether I like it or not. But I want them to have the facts right, at least those that I am familiar with. We would be thrilled to know you or anybody else what we are talking about.

I am very committed to this country up here, this ranch, and these people. If you are going to do this thing, I would like some help to acquire or develop replacement lands, so that we can continue to have an economic entity that can compete effectively and continue to support our people, the beef industry in Colorado, the economy of Grand County, and preserve a way of life we think is not only worth preserving but is irreplaceable.

75-2

What makes Colorado very special is our Rocky Mountains with their streams, trees and wildlife. These have great value both to Coloradans and to our $5 billion tourist industry. Looking around at what's going on in our area, I'm beginning to wonder whether what we are doing is the right thing for our future.

Maybe it's time we stopped "regulating" (read damming and diverting) mountain streams and "managing" (read clear-cut) aspen trees. Maybe it's time we really got serious about air pollution.

I think we have our priorities screwed up.

Sincerely,

Grand River Ranch

Daniel L. Ritchie

Response

75-1 We appreciate this clarification.

75-2 Lands that would be inundated or otherwise used by the River District around Muddy Creek Reservoir would be purchased at fair market value from the landowners. This compensation would allow the landowners to buy replacement lands if they so choose.

Comment Letter 76

OCT 1987

Victor Rosenzweig
Box 771045
Steamboat Springs Colo 804
Oct 25, 1987

Jerry Schmidt
Forest Service Supervisor

I know the deadline date for the Rock Creek, Muddy Creek Reservoir is due tomorrow and as I sit with the Draft EIS report in front of me, I feel something must be said concerning this project.

As I page through this well written report. I can't help but keep coming back to some of the statements made on the first few pages of the manual.

On page 1

"In reviewing the River District Special Use Permit Application, the Forest Service determined that the proposed construction may involve significant environmental impacts."

On page 1-1

"The U.S. Forest Service is the lead agency for this environmental compliance action."

"In reviewing the River District Special Use Permit Application, the Forest Service determined that the proposed construction

Comment Letter 76

may involve significant environmental impact
On page ix and
the Preferred Alternative
"The U.S. Forest Service does not have a preferred
alternative." and just under the Preferred
Alternative is written
The Environmentally Preferred Alternative
"The environmentally preferred alternative is the
no-action alternative"
It seems to me, under analysis that the
environmentally preferred alternative should be the
Forest Service preferred alternative if they consider
themselves to be the "lead agency for this
environmental compliance action."
On page iv under No-Action Alternative
"The no-action alternative provides a baseline
for analysis of impacts. Under the no-action
conditions the Rural Districts would be required
to institute a variety of legal and institutional
proceedings related to the adjudication and
negotiations described above."
I understand this to mean that it would force
the Rural Districts to prove the need for either
of these two projects at the present time.
As an environmentalist, I am beginning to feel
that the environmentally preferred alternative
is not a major consideration anymore.

Response

Comment Letter 76

otherwise why isn't the Forest Service willing
to make a stand? As the guardian of our public
lands why isn't the Forest Service preferred
alternative the environmentally preferred
alternative?

76-1.

My husband and eleven year old son
are avid fly fishermen and I urged them
to be concerned over the elimination of a
favorite fly fishing area. They both stated
that it doesn't matter. Mom, they're going
to build a reservoir there anyway.
With the proposed reservoir already in
progress, another reservoir proposed on
the Elk, and these two on their way,
it is hard to encourage them to believe
otherwise.

Mr Cargill, regional Forest Director
gave us some inspirational words
at the Durango - environment - development
conference I attended last month. "We, the
Forest Service, welcome controversy. We
abhor apathy." I am afraid "apathy"
will prevail if there is the ever
present belief that one never says
no. It seems that this has become
evident with the low turnout and

Response

76-1 The concept of the agency's preferred alternative is different from the environmentally preferable alternative. The preferred alternative is that which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and social factors. The environmentally preferred alternative is that which will promote the national environmental policy as expressed in NEPA's Section 101.

Comment Letter 76

lack of interest of the general public pertaining to this project.

76·2 I urge you, the Forest Service, as the guardian of our environment to consider the Environmentally Preferred Alternative - the no-action alternative. Thank you for your consideration.

Sincerely,

Vickie Montgomery

Response

76·2 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 77

October 22, 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40 Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

77·1 As regards your decision to permit a dam on either Rock Creek or Muddy Creek, I urge you to select the Muddy Creek option.

Muddy Creek could be improved by a dam. Rock Creek would be destroyed as a recreational resource.

As far as cost and yield is concerned, either would be satisfactory for the requested purpose. Why do we need to destroy another high quality trout stream when such an acceptable option exists?

If the dam is built on Muddy Creek we might even get a bonus tailwater fishery out of it in time and the impacts of constructing a Muddy Creek dam require no mitigation. Mitigation for Rock Creek will be difficult as the proposed Egeria Creek mitigation scheme is obviously inadequate.

How often do you get to approve a dam that requires no mitigation and will actually have the potential for some positive impacts into the bargain?

Sincerely,

Charles A. Russell
8500 W. 81st Dr.
Arvada, CO 80005

OCT 1987

Response

77·1 Thank you for your comment. It was considered in the selection of the preferred alternative.

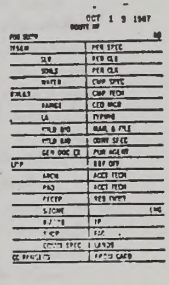
Comment Letter 78

Thank you for your time and consideration.

Sincerely,

Jacquelina Saguto

Jacquelina Saguto
Box 914
Oak Creek, Colorado 80467



Response

Comment Letter 78

October 14, 1987

Mr.Jerry E. Schmidt
U.S. Forest Service
Routt National Forest
29587 West U. S. 40
Steamboat Springs, Colorado 80487

Re: Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

The meeting regarding the Rock Creek/Muddy Creek Reservoir which was held in Yampa last week was well-conducted and enlightening. Thank you for the opportunity to expresse my views then and now.

In considering U.S. Forest Service approval for this project, I hope you will keep foremost in your mind the protection of our national forests for which your agency is charged and your responsibility to maintain intergenerational equity in the management of these forests. It appears that the Rock Creek/ Muddy Creek Reservoir proposal is not consistent with these obligations. Firstly, there is no actual need for this water storage project and secondly, it will only lead to irreversible, ecologicla damage (the extent of which is yet to be determined). Also, if this project were to be completed the Forest Service would have to continually clear forests areas to create artificial run-off. This situation is directly contrary to one of the most important features of forests - their role as a water-shed and protector of soil.

78-1

Regardless all these concerns, however, is the fact that allowing this project would cater to extravagant water use by municipalities and the willingness on the part of these entities to institute sound watering policies. This forestalls the critically needed awareness of the scarcity and preciousness of this resource and its wise use.

78-2

I urge the U. S. Forest Service to resist this unworthy proposal and stand strong in its portection of national forests not for fify or a hundred years down the road but for and indefinite period of time.

Response

78-1 Clearing of forest areas to create artificial runoff is not a part of either proposed project. The hydrologic and operational analyses have been based on historic and existing condition hydrology to estimate reservoir inflow and water yield.

78-2 Thank you for your comment. It was considered in the selection of the preferred alternative.

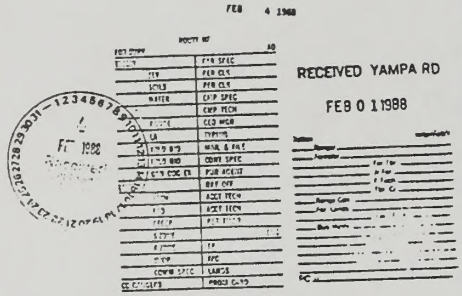
Comment Letter 79

January 30, 1988

Dear Sir:

79.1 I'm desiring of Red Creek would another of man's disturbing uses of the Earth's natural resources! Please send me a copy of the Draft C.I.S. describing the effects of the proposed Red Creek dam. Thank you!

Sincerely,
Rodney M. Scarpelli, Wildlife Biology
Colorado State University
Corbett Hall #C418 C
Fort Collins, CO 80521



Response

79.1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 80

728 8th Street
Boulder, CO 80302
October 5, 1987

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40 - Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

80.1 I am writing this letter to express my opposition to two dams and reservoirs being considered: Red Creek in the Yampa Ranger District and on Muddy Creek in the BLM Kremmling Resource Area. The reservoirs would destroy valuable natural lands and also the historic Red Creek Stage Station. There would be a significant loss of wildlife and plant habitat, particularly for some species.

Thank you.

Sincerely yours,
Jane E. Schlemmer

OCT 13 1987

Response

80.1 Thank you for your comment. It was considered in the selection of the preferred alternative.

Comment Letter 81

JOHN SPEZIA
BOX 2255
STEAMBOAT SPRINGS
COLORADO, 80477

Sept. 18, 1987

Supv. Schmidt,

I am writing in regards to the Rock Creek & Muddy Creek proposed dams and the EIS that has been drafted.

Since I am unable to attend the meetings I would like this letter to be entered into the testimony + comments.

81·1 The first question... How can either of these proposals be taken seriously when the credibility of the Twin Forks project is seriously questionable? The need, the financing and the impact for Twin Forks is on such shaky grounds that to proceed with these proposals seems like the cart before the horse... the roof before the foundation!

I suggest that any serious planning decision or actions should be delayed until the major hurdles are overcome for the Twin Forks project or the project is disbanded. After all, with out water diversion from Green Mtn. Resv. to Dillon Resv. for Twin Forks, the reason for these two proposals on Rocky + Muddy is eliminated.

The other concern I have is the great loss of hunting + fishing in the Rocky Creek area if the dam is built. There is no way to replace such a fine canyon, great fishing and the tourist income that is generated by this area.

Response

81·1 It is assumed that your reference to the Twin Forks project was meant to be the Two Forks project. The relationship between the proposed project and the Metro Denver Water Supply System-wide EIS (which includes the Two Forks project) is discussed in Section 1.2.3.2 SDEIS.

Comment Letter 81

81·2 The mitigation scheme to replace this prime wetland + trout stream is to purchase the Egeria Creek area and modify the stream. This is crazy! The stream is almost dry in the summer. The soil below cannot possibly be used for a wetland since it does not absorb water as in most wetlands.

81·3 And lastly, diverting water from the Yampa to make it suitable for water, wetlands and fish seems to be an underhanded way of the developers (Denver Water Board I suppose) to take water from the Yampa and getting water credit for the water in the Colorado.

The Yampa will be drained enough with the new Stage Coach dam going into effect in 1989.

This whole scheme seems like some kind of science-fiction "who-done-it" scenario.

If we destroy and artificially mitigate our natural resources away, we will lose the qualities of Colorado that brings us here to live and also deny us a living by destroying the resources that bring tourists here to generate an income for our lives.

Tourists don't come to fish on reservoirs, they have these at home. Tourists don't come to fish Egeria Trout ponds, they have these at home too.

We have enough stocked reservoirs and sadly mitigated artificial areas in Colorado.

Let's keep the rest of Colorado in its non-natural state. This "state" is the State of Colorado!

Sincerely, John Spezia

Response

81·2 Please see Section 5.2.2, 5.2.3, and 5.2.4 of the SDEIS for more information concerning the feasibility and effectiveness of using Egeria Creek as a mitigation site.

81·3 The mitigation plan for Rock Creek does not require that any water be diverted from the Yampa River basin (See Section 5.2 SDEIS). Mitigation at the Egeria Creek site would be accomplished with native water supplies in the basin.

Comment Letter 82

SIDNEY J. SPIEGEL
Hydrogeologist
P. O. Box 770547
Steamboat Springs, CO 80477

24 October 1987

Jerry E. Schmidt
Forest Supervisor, Routt National Forest
2-587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

RE: ROCK CREEK/MUDDY CREEK RESERVOIR DRAFT ENVIROMENT IMPACT STATEMENT.

Sedimentation:
On pages 3-4 and 3-5 of the DEIS there is a discussion of the Site Geology of the Dam construction sites of Rock Creek/ Muddy Creek Reservoirs. However, the geology of the dreinage areas of each contributing basin is not discussed in enough detail to indicate the magnitude of sediment contribution due to the nature of the exact geologic formations that underly each dreinage basin. Also, the is no reference to the Sedimentation Studies done at the Rock Creek/Muddy Creek Dam Sites by the U. S. Geological Survey.

82·1

The name "Muddy Creek" and the observed Spring snowmelt run-Off are good indications of an extremely high sediment carriage to the proposed Muddy Creek Reservoir site and has been born out by the Studies done by the USGS.

Where the Rock Creek Study has estimated a mean annual total sediment discharge into the proposed reservoir at 450 tons per year the Muddy Creek Study has estimated the mean annual total sediment discharge into the proposed reservoir at 85,000 tons per year. However, I would like to point out that the Muddy Muddy Creek Study was done for the Water Years 1985 through 1985 and it is unlikely that the theoratical 100 $_{4}$ flood flow peak was included in the statistical determination of the mean annual discharge total. In other words, the potential contribution of sediment to the Muddy Creek Reservoir site could be considerably higher than the level of contribution alluded to in the DEIS (10% of capacity after 100 years of sediment inflow at the 85,000 tons per year rate).

82·2

Due to the high sediment load that would be contributed to the proposed Muddy Creek Reservoir long term contact with the sediments derived predominantly from the Pierre Shale would effect the overall quality of the water and materially increase the total dissolved solids content of the impounded waters.

82·3

All of the above would contribute to a lesser desirability to the selection of "Muddy Creek" as the Preferred site.

-1-

Response

82·1 Soil characteristics of the Muddy Creek basin are discussed in detail in Section 3.3.2 SDEIS. The USGS sediment study is referenced in Section 3.4.2.2 (DEIS and SDEIS) and the nature of the sediment load is discussed (Muddy, 1986). The USGS study is referenced and quoted from in Section 4.4.3.2 of both the DEIS and SDEIS.

82·2 A substantial factor of safety is included in the Muddy Creek sedimentation estimates (See Response to Comment 3-23).

82·3 Water quality and salinity issues for Muddy Creek are addressed in Section 4.4.3.5 SDEIS.

Comment Letter 82

Recreation:
Section 4.0 Environmental Consequences.
4.5.12 Recreation Resources discusses the anticipated impacts of the Rock Creek Reservoir Site. Although Steamboat Lake (A Colorado State Park Facility) is mentioned. Pearl Lake (also a State Facility) a few miles southeast of Steamboat Lake is not mentioned, nor is there a discussion of Stagecoach Reservoir (currently under construction--just a few miles north of the Rock Creek site) that will also have a Colorado State Park Facility associated with it upon completion.

82·4

Respectfully submitted,

Sidney J. Spiegel
Hydrogeologist

OCT 1987

Response

82·4 Visitation data for these other State Park facilities were not available; they were not included in the demand study. However, there will likely be some reallocation of visitation if either of the dams are built (see pages 4-88 and 4-170 of the SDEIS). Steamboat Lake was mentioned in Cumulative Impacts, Section 4.5 of the DEIS.

Comment Letter 83

Kim Vacariu
Box 773540
Steamboat Spgs., CO
80477

10/21/87

TO: Jerry Schmidt
Forest Supervisor
29587 West U.S. 40
Suite 20
Steamboat Spgs., CO
80437

RE: COMMENT FOR THE RECORD ON PROPOSED ROCK CREEK RESERVOIR

As a long-time resident of Routt County, I have become incrassingly cOncerned about the use of our western slope water resources for the sole purpose of assisting in the growth of the Oenver metro area.

83·1 I oppose the selection of the Rock Creek site as indicated in the EIS for the following reasons:

1. I believe that the rock creek reservoir would not be considered for construction at this time if it were not for the option of leasing its water to the Denver Water Board. This type of tHinking is definitely not in the best interests of the western slope water interests. The way in which the lease is set up will allow Denver to use nearly all the water in the reservoir for not just 25 years, but for all of time. The end result---destruction of natuRal fishing and wildlife habitat foR people in western Colorado at the Expense of Denver's thirst for growth.

83·2 2. The EIS does not address the complete source or amount of water to be used for the Egeria Creek mitigation. This loophole allows for the potential use of additional Yampa River water to be used in a trans-basin water diversion wHich threatens even further the natural flows in the Yampa--flows which are essential to the economic and natural well-being of our tourist-dependent economy.

Sincerely,
Kim Vacariu

Response

83·1 Thank you for your comment. It was considered in the selection of the prefarred alternative.

83·2 See Response to Comments 63-2 and 81-3.

Comment Letter 84

Oct. 24th, 1987

Mrs. Theodore B. Washburne
4075 South Colorado Boulevard
Englewood, Colorado 80110

Jerry Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S 40
Steamboat Springs
Co.- 80487

OCT 1987
Received
Routt National Forest

We would like to voice our concerns regarding the mitigation plans for Rock Creek on Egeria Creek.

Under the current proposal our land holding on Egeria Creek would be the only private stretch in more than 10 miles of river.. [the water in Egeria canyon is all public water]. We feel it would make more sence to buy that portion of our ranch that lies west of Egeria Creek, in order to provide continuous public fishing as well as access,

84·1

Response

84·1 We appreciate your comment and will consider it if a detailed mitigation plan is prepared for the Rock Creek alternative. See the SDEIS for additional information on the Preferred Alternative and additional detail on mitigation planning for Rock Creek.

Comment Letter 84

on an excellent road, that runs to the Creek and provides access to the canyon. [There is not much land involved, approximately 130 acres.]

We request that copies of the FEIS be sent to all landowners adjacent to Eagle Creek, including ourselves.

Sincerely,

Mary M. Washburn

Ted Washburn

Response

Comment Letter 85

KIRKLAND & ELLIS

A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

Chicago Office
200 East Randolph Drive
Chicago, Illinois 60601
Telex 25-4361
312 861-2000

1999 Broadway
Denver, Colorado 80202
303 791-3000

Washington Office
655 Fifteenth Street, N.W.
Washington, D.C. 20005
202 879-5000

To Call Writer Direct
303 791- 3009

November 4, 1987

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

85.1 Please send me a copy of the following documents concerning the proposed "Rock Creek/Muddy Creek Reservoir":

(1) Draft EIS, as described in Notice of Availability published in the Federal Register Vol. 52, No. 175, Sept. 4, 1987, p. 33636;

(2) Final EIS, when released; and

(3) Any decision notice or other decision document concerning this project or any alternative thereto.

Thank you for your cooperation.

Very truly yours,

Charles B. White

CBWirrd

Response

85.1 Your request is noted.

Comment Letter 86

WILLIAMS, TURNER & HOLMES, P.C.

October 6, 1987

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
25987 West U.S. Highwey 40, Suite 20
Steamboet Springs, CO 80487

Deer Mr. Schmidt:

I em the member eppointed by the Governor end confirmed by the Senete to represent the mein Coloredo River Dreinege on the Boerd of Directors of the Coloredo Water Resources end Power Development Authority. Because of thet membership, I wee eble to ettend the tour of the Muddy Creek end Rock Creek dem eitee sponsored by the Coloredo River Weter Conservetion District on September 29, 1987. My femilierity with the eites sxtends beyond the informetion geined on the tour because I heve been privileged to reed meny commenteries on the sites.

86-1 The best decision for the people of thie State would be to construct the dem et the Rock Creek site. I know you are awere thet the dem will be used to solve short-term weter shorteges anticipeted on the East Slope end et the end of the leese term, ell of the water supply will be availeble for the needs of the West Slope. The lease itself contemplates thet there will be a supply within the reservoir for immediete use on the West Slope. Further, the recreetionel advantages offered by the site will be immedietely available for the public.

Yours very truly,

WILLIAMS, TURNER & HOLMES, P.C.

Anthony W. Williems

AWW/sr

Response

86-1 Thenk you for your comment. It wee conaidered in the selection of the preferred elternative.

7.0 PUBLIC HEARINGS AND WRITTEN COMMENTS AND REPONSES SUPPLEMENTARY DRAFT EIS

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7.0 PUBLIC HEARINGS AND WRITTEN COMMENTS AND RESPONSES - SUPPLEMENTARY DRAFT EIS

Comments on the Supplementary Draft EIS (SDEIS) were received during public hearings on October 3, 1988 in Denver, Colorado; October 4, 1988 in Kremmling, Colorado; October 5, 1988 in Oak Creek, Colorado; and October 6, 1988 in Grand Junction, Colorado. Written transcripts of these hearings were prepared by the Bureau of Land Management. Written comments were received during the comment period following distribution of the SDEIS. The comment letters received and hearing transcripts are reproduced in this chapter. Accompanying each identified comment is a response. Some of the responses give supplementary information or a reference to the appropriate section of the Supplementary Draft EIS or this Final EIS where revisions were made to the SDEIS.

The twenty-three comment letters have been grouped as to type of agency (federal, state, county/municipal, other organizations, and individuals) and numbered sequentially, starting with comment letter 101 to distinguish the SDEIS comment letters from the DEIS comment letters (which start with comment letter 1). Transcripts of the public hearings are identified by letter: A, B, C, D. Comments are referenced to the index number of the commenting agency and then are numbered consecutively within the comment letter (e.g., Index Number 101-5 refers to the fifth comment from the Army Corps of Engineers). The responses to the comments appear adjacent to the reproduced comment letter for ease of reference. In addition, to permit cross referencing the comment by discipline (aquatic biology, economics, etc.) an index to the comments by discipline is included.

INDEX OF WRITTEN AND PUBLIC HEARING COMMENTS
BY SOURCE, ROCK CREEK/MUDDY CREEK RESERVOIR
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101.	Department of the Army Sacramento District, Corps of Engineers Sacramento, California
102.	U. S. Department of Interior Bureau of Reclamation Great Plains Region Billings, Montana
103.	U. S. Department of Interior Fish and Wildlife Service Colorado Field Office Golden, Colorado
104.	U. S. Department of Transportation Federal Highway Administration Region Eight Lakewood, Colorado
105.	United States Environmental Protection Agency Region VIII Denver, Colorado
State Agencies and Representatives	
106.	Department of Natural Resources State of Colorado Denver, Colorado
107.	Senator William L. Armstrong United States Senate Washington, D. C.
108.	Congressman Ben Nighthorse Campbell House of Representatives Washington, D. C.

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[1]/ Comments are referenced to the index number of the commenting agency and then are numbered consecutively within the comment letter (e.g., Index No. 101-12 refers to the 12th comment from the Army Corps of Engineers.

Counties, Municipalities, and Districts

109. Town of Granby
Granby, Colorado

110. Grand County Board of Commissioners
Court House
Hot Sulphur Springs, Colorado

111. Grand County Water and Sanitation District No. 1
Winter Park, Colorado

112. Town of Kremmling
Kremmling, Colorado

113. Kremmling Sanitation District
Kremmling, Colorado

114. Mesa County Water Association
Fruita, Colorado

115. Municipal Subdistrict
Northern Colorado Water Conservancy District
Loveland, Colorado

116. Summit County Board of County Commissioners
Breckenridge, Colorado

Other Organizations

117. Colorado - Ute Electrical Association, Inc.
Montrose, Colorado

118. Natural Energy Resources Company
Palmer Lake, Colorado

119. Trans Mountain Hydro Corporation
Golden, Colorado

120. Tri-State Generation and Transmission Association, Inc.
Denver, Colorado

Attorneys and Individuals

121. Kirkland & Ellis
Denver, Colorado

122. Glen A. Miller and Associates
Grand Junction, Colorado

123. William E. Rayner
Kremmling, Colorado

Public Hearings

A. Denver Botanical Gardens
Denver, Colorado
October 3, 1988

B. County Fairgrounds
Kremmling, Colorado
October 4, 1988

C. Oak Creek High School
Oak Creek, Colorado
October 5, 1988

D. Bureau of Land Management
Grand Junction, Colorado
October 6, 1988

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SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

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SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT (continued)

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Comment Letter 101

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814-4794

REPLY TO ATTENTION OF

November 23, 1988

Regulatory Section

Mr. David Atkins, Area Manager
Bureau of Land Management
Kremmling Resource Area
1116 Park Avenue
Kremmling, Colorado 80459

Dear Mr. Atkins:

The Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed Rock Creek/Muddy Creek Reservoir Project has been forwarded to this office for direct reply. The SDEIS has been reviewed as it relates to Corps of Engineers projects, investigations, navigation and regulatory responsibilities.

The proposed action does not conflict with Corps of Engineers projects or investigations for flood control, navigation or water resources developments in the project area. Flood control investigations in the Colorado River Basin are currently being conducted by Sacramento District, Corps of Engineers.

Our early and continued involvement in the disclosure of the environmental consequences of the alternative projects as a cooperating agency has afforded resolution of the preponderance of our regulatory (Clean Water Act) concerns. The following comments are provided for consideration in preparing The Final Environmental Impact Statement (FEIS):

101-1 1. Pages 1-17, Paragraph 3 - A structural alternative in the Fraser River Valley is directly associated with the proposed projects through the River District - Denver Water Board Agreement of December 15, 1986 (MOA). The link provided by the MOA qualifies the Fraser Basin proposals for consideration in the cumulative impact section, and should be discussed in the FEIS.

101-2 2. Pages 11-17 Paragraph 4 - The base price of $250.00 per acre-foot per year appears a bargain under the Denver Water Board Lease in comparison with the cost per yield of the much larger projects studied during development of the Metropolitan Denver Systemwide EIS. It appears that the River District should receive a greater base price per acre-foot to allow greater opportunity for future West Slope Water development.

Response

101-1 As noted in Section 2.2.2.6 SDEIS, the Colorado Water Resources and Power Development Authority, in conjunction with the River District and other project proponents, is currently investigating small storage sites in the Fraser River basin as a solution to water supply problems. The Denver Water Board - River District Memorandum of Understanding and Lease related to the proposed project would assist the District in solving problems related to present and future water needs in Western Colorado, such as those in the Fraser Basin. However, the Authority study is at the feasibility level and is considering structural solutions, non-structural solutions, and combinations of these. It would be premature to anticipate the outcome of that study in this document.

The Denver Water Board currently has the ability to fully utilize their diversions upstream of Kremmling. The proposed project will not change the historic functions of Williams Fork Reservoir and will not change the diversions by the Moffat Tunnel diversion system. The proposed project will not impact the Fraser Basin.

Since a Fraser River site has not been selected it is difficult to include in the cumulative impacts section. Projects included in this section generally have been identified and have a fairly high chance of being constructed, at this time this is not the case for a Fraser River structural alternative.

101-2 The Memorandum of Agreement between the River District, Denver Water Board, and the Northern Colorado Water Conservancy District not only established the conditions for leasing water from the proposed reservoir, but also resolved a number of other long-standing issues between the parties involved. Accordingly, the price per acre foot was not the only consideration. For a 25-year lease period the River District believes the $250 per acre foot to be acceptable.

Comment Letter 101

101-3 3. Pages 2-37, Paragraph 2 - What portion of the 1740 acres of livestock grazing lies within mitigation property on Muddy Creek? Will the Kremmling Management Plan of the Bureau of Land Management be capable of sufficient change under amendment to allow development of mitigation commensurate with project implementation.

101-4 4. Pages 2-43, Table 2.7.1 - It may be appropriate to indicate all functional wetland value may not be mitigated at the Muddy Creek Site.

101-5 5. Pages 3-69, Paragraph 3 - Does the acre value of artificially irrigated meadows represent all of the wetlands present due only to artificial irrigation? From a Corps of Engineers jurisdictional point of view, are there any other wetland types that could be supported solely by artificial irrigation?

101-6 6. Pages 4-179, Paragraph 4 - The possibility of Fraser River structural alternatives should be discussed at this juncture due to potential significant cumulative impacts.

101-7 7. Pages 5-21, Paragraph 3 - This paragraph is repetitive and redundant. The same narrative is provided on Page 5-18.

101-8 The development of the recent mitigation proposal has afforded greater specificity of mitigation and alternative mitigation. The inclusion of this plan at Chapter 5 or as an appendix to the FEIS would provide more site specific detail to the reader upon review and would display the amount of effort that has been given to mitigation of project impacts.

Thank you for the opportunity to review the SDEIS. If you have any questions, contact Ken Jacobson at telephone (303) 243-1199.

Sincerely,

Grady L. McNure
Chief, Regulatory Unit 4
764 Horizon Drive, Room 211
Grand Junction, Colorado 81506-8719

Copies Furnished:
Mr. Jerry Schmidt, Forest Supervisor, Routt National Forest, 29587 West U.S. 40, Suite 20, Steamboat Springs, Colorado 80487
BIO/WEST, Inc., 1063 West 1400 North, Post Office Box 3226, Logan, Utah 84321

Response

101-3 About 395 acres of public land would be fenced from grazing for the proposed mitigation area. The affected allotments would be changed to affect the mitigation needs. The Kremmling RMP would need to be amended to facilitate the reservoir. The FEIS (Section 1.9) includes the proposed change to allow authorization of the reservoir and the mitigation areas.

101-4 Your comment is appreciated. As noted in the SDEIS for Rock Creek, and which holds true also for Muddy Creek, it is our opinion that the major functional value lost would be wildlife habitat. A discussion of the reasons for this position is provided in Chapter 2.0 of this FEIS.

101-5 In August 1989, a survey was completed in coordination with the Sacramento District to delineate jurisdictional wetlands at Muddy Creek. A copy of the jurisdictional wetlands survey report is on file with the Grand Junction office of the Sacramento District. A continuum exists between solely artificially irrigated wetlands and natural wetlands. This fact is the primary reason why the wetlands analysis centered on all wetlands, not just jurisdictional wetlands, since the two types could not always be accurately separated. Therefore, the wetland assessment not only identifies all areas with wetland characteristics, but also includes all types of wetlands in the project area.

101-6 Please refer to Response to Comment 101-1.

101-7 We agree with your comment, however, we felt that the information was of interest to the reader of both the vegetation and wildlife sections.

101-8 The mitigation plan for the Muddy Creek proposal has been summarized in Chapter 3.0 of this FEIS.

Comment Letter 102

United States Department of the Interior
BUREAU OF RECLAMATION
Great Plains Region
P.O. Box 36900
Billings, Montana 59107-6900

IN REPLY REFER TO:
GP-157

DEC : 1988

Memorandum

To: Mr. Dave Atkins, Resource Area Manager, Kremmling Resource Area, Bureau of Land Management, P.O. Box 68, Kremmling, CO 80459

From: Regional Director, Billings, Montana

Subject: Supplemental Draft Environmental Impact Statement (SDEIS) for the Proposed Rock Creek/Muddy Creek Reservoir (Environmental Statement)

We have reviewed the subject document and have the following comments:

102-1 1. The Index (Section 10, page 10-7) shows the Bureau of Reclamation (Reclamation) is to be discussed on pages 1-25 and 5-2, but no references to Reclamation appear on these pages.

102-2 2. It is assumed the shortages to permit full utilization of the 100,000 acre-foot pool referred to in Section 1.2.3.4(2), page 1-9, are Green Mountain Reservoir water marketing shortages during dry years. This should be clarified in the final environmental statement.

102-3 3. There is not a list of environmental commitments contained in the subject document. Reclamation believes such a list should be contained in the final environmental statement to inform the public of all environmental commitments in a concise, trackable manner.

102-4 4. A review of those sections in Chapters 4 and 5, which address cultural resources, gives a diffuse indication that appropriate cultural resource compliance will occur. We suggest a clear, concise commitment concerning cultural resources according to 36 CFR 800.4 and .5 be contained in the environmental commitment list discussed above.

D. S. Louver

Response

102-1 The references are in error and should be Bureau of Land Management pp. 1-25 and 5-1.

102-2 This assumption is correct. In preparing the SDEIS the more specific language of the DEIS was generalized so as not to presume the outcome of the Bureau of Reclamation's Green Mountain water marketing contracting process. This operational requirement has been eliminated from the FEIS (See Section 1.4.3.7 and Chapter 2.0 FEIS.)

102-3 This final Environmental Impact Statement (FEIS) contains a list of environmental commitments (Chapter 5.0).

102-4 Cultural resources commitments are included in the list of environmental commitments in the FEIS (See Response to Comment 102-3).

Comment Letter 103

United States Department of the Interior
FISH AND WILDLIFE SERVICE
COLORADO FIELD OFFICE
730 SIMMS STREET
ROOM 292
GOLDEN, COLORADO 80401

IN REPLY REFER TO:

MEMORANDUM November 21, 1988

TO: Resource Area Manager
Bureau of Land Management, Kremmling Resource Area,
P.O. Box 68, Kremmling, Colorado 80459

FROM: Acting State Supervisor, Fish and Wildlife Enhancement, Golden, Colorado

SUBJECT: Supplemental Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir

We have reviewed the Supplemental Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir, Routt and Grand Counties, Colorado, and have the following comments.

General Comments

The Fish and Wildlife Service (Service) finds that the Supplemental Draft Environmental Impact Statement (SDEIS) is well-written and, generally, the Description of Alternatives and Affected Environment chapters are complete and accurate. However, some sections of the Environmental Consequences and Mitigation chapters need additional information.

103-1 The SDEIS mentions that an Annual River Operation Meeting should be established with the Denver Water Department, the Northern Colorado Water Conservancy District, the Colorado River Water Conservation District, the Bureau of Reclamation, and local water users. We request involvement of the Colorado Division of Wildlife and the Service in the proposed meetings to insure concerns regarding downstream impacts to fish and wildlife resources, especially endangered fish, are addressed.

103-2 The Environmental Consequences chapter does not address impacts to the aquatic environment on the Colorado River above the Blue River confluence or impacts to the Williams Fork River below Williams Fork Reservoir. We understand that the proposed reservoir would supply Green Mountain Reservoir fill deficit under the East Slope Scenario. However, since the proposed reservoir would be operated in conjunction with Williams Fork Reservoir, as well as Dillon and Green Mountain Reservoirs, potential impacts induced by changes in flow on the Colorado River above Kremmling and the Williams Fork River should be addressed.

103-3 The Mitigation chapter explains impacts to fish and wildlife resources and outlines proposed mitigation measures. The wetlands mitigation is based on a Habitat Evaluation Procedures (HEP) study conducted at the Rock Creek and Muddy Creek proposed reservoir sites, and proposed mitigation sites for each

Response

103-1 It is intended that the annual operations meetings (Section 1.2.3.4 SDEIS) include participation by all interested agencies such as Fish and Wildlife Service and Colorado Division of Wildlife, as well as input from environmental groups, other interested groups and the public. The meetings will consider operational enhancement of the upper Colorado River water storage and delivery system within the operational constraints, demands and flexibilities of the water management agencies.

103-2 With Williams Fork Reservoir, Denver currently has the ability to fully utilize their diversions upstream of Kremmling. This project will not change the historic functions of Williams Fork Reservoir and will not change the diversions by the Moffat Tunnel diversion system.

Substitution of water involving Green Mountain Reservoir and the proposed reservoir will be the subject of an agreement between the United States (Department of the Interior), the Denver Water Board, and appropriate other entities. Conditions under which substitution can be made will require specific approval of the Secretary of the Interior (acting through the Bureau of Reclamation) prior to the implementation of this agreement. As noted in Section 1.1, the SDEIS is the Bureau of Reclamation's NEPA compliance document for this proposed action. If future substitutions or exchanges are proposed which have impacts different from those disclosed in the SDEIS, additional NEPA compliance will be required by the Secretary of the Interior. The Agreement will be limited to a substitution of water between Green Mountain and Muddy Creek Reservoirs. Therefore, the proposed project will not impact the referenced reach of the Colorado River. Since there would be no hydrologic impacts to this reach, there would be no impacts to the aquatic environment.

103-3 We appreciate your comment. The explanation for the 200 acres at Egeria Creek is shown in Table 5.2.4.2 which explains the beaver model. Since a high SI value is achieved with less than 100 percent trees or woody shrubs (actually only 25-20 percent would be needed, the entire mitigation area does not need to have trees or shrubs) hence only a portion would be planted. A similar explanation applies to Muddy Creek. The HEP evaluation and use in mitigation is explained in more detail for Muddy Creek in Chapter 2.0 of the FEIS and in the Muddy Creek Mitigation Plan (Chapter 3.0 FEIS). Please refer to these documents which have clarified the questions you raise.

Comment Letter 103

area. Tables on pages 5-10 and 5-22 summarize the results of the HEP studies for Rock Creek and Muddy Creek respectively. There seems to be some discrepancy between the number of acres required post-management for mitigation by the HEP analysis and the number of acres shown in the list of management actions for each site. At Rock Creek, the HEP analysis shows 376 acres (with a habitat suitability index of .5) would be required to replace 188 habitat units (with a habitat suitability index of .75) of willow riparian habitat (represented by the beaver model). However, page 5-14 outlining management actions would only provide vegetation of 260 acres of riparian habitat. At Muddy Creek, the HEP analysis indicates that 161 acres (with a habitat suitability index of .65) would be required to replace 20 habitat units (with a habitat suitability index of .5) of willow riparian habitat (represented by the beaver model). The habitat management practices outlined for lower Muddy Creek indicate 50 acres would be vegetated with willow and other riparian species. The mitigation requirement for wet meadow represented by the elk model would be 501 acres (with a habitat suitability index of .8) to replace the 324 habitat units (with a habitat suitability index of .39) lost in the reservoir site. The mitigation proposals for wetlands do not appear consistent with the HEP analysis. There is a mixture of habitat unit replacement and acre for acre replacement in the proposed management practices. The outline of proposed management practices should show how lost habitat units will be mitigated and relate the number of acres proposed for management with the number of habitat units required for mitigation by the HEP analysis. Habitats not within the scope of the HEP analysis (beaver ponds and cottonwood stands) are adequately addressed.

103·3

The Service has received a draft biological assessment that addresses Federally threatened and endangered species. The Service is in the process of reviewing this document. After the Bureau of Land Management addresses our comments, we anticipate formal Section 7 consultation to begin. The final Environmental Impact Statement should not be released until Section 7 consultation has been completed. Section 7(d) of the Endangered Species Act, as amended, requires that the Federal agency or applicant not make any irreversible or irretrievable commitment of resources during the consultation period.

103·4

Specific Comments

	Page	Section	Comments
103·5	1-11	1.2.3.4	Paragraph one discusses Annual River Operation Meetings. We request involvement of the Colorado Division of Wildlife and the Fish and Wildlife Service in these meetings. We are concerned about downstream impacts to fish and wildlife resources, especially endangered fish.
103·6	4-61	4.3.6.2	Paragraph four of this section states "The proposed reservoir would not destroy the hydrologic and soil components of wetlands." Although these components would physically remain after inundation, they would not re:ain their wetland functions. According to the

Response

103·4 Results of Section 7 consultation and the Biological Opinion are summarized in the FEIS (Chapter 4.0).

103·5 See Response to Comment 103-1.

103·6 Wetland soils alone do not perform functional values. They provide a plant growth medium which is exploited by hydrophytic vegetation and provides a medium to contain and convey water. The vegetation along with water, are the most important components of a wetland in regard to the functional values provided by wetlands. Therefore, inundation of wetland soils does not in itself constitute a reduction of overall functional value of a wetland. A more detailed discussion of wetland functional values which would be lost with a reservoir is included in Chapter 2.0 of this FEIS.

Comment Letter 103

U.S. Soil Conservation Service, Soil Survey Staff (1975:1-2), soil is limited to terrestrial situations and shallow waters. Therefore, areas are not considered to have soil if the surface is permanently covered by deep water.

103·7	4-63	4.3.6.4	This section states that the mitigation plan presented in Chapter 5 would totally mitigate the loss of wetlands. Considering the high wildlife values associated with the wetlands in the project area, it would be doubtful that the plan as presented could "totally mitigate" losses incurred.
103·8	4-64	4.3.7.1	This section states siltation would occur below the dam site during construction, with settling occurring near McCoy. A monitoring program should be initiated to determine impacts to spawning brown trout in this area.
103·9	4-74	4.3.7.2	This section states that it is expected that Egeria Creek would not replace all of the aquatic resource values lost at Rock Creek. This does not meet the Service's mitigation goal of in-kind replacement of habitat values.
103·10	4-75	4.3.7.4	The West Slope demand section should address impacts to other areas (Colorado River above Rock Creek, Blue River, etc.).
103·11	4-76	4.3.8.1	Paragraph 3 discusses a power transmission line. Would the proposed line be constructed to prevent raptor electrocutions? We request that any power lines associated with the project be designed to conform with criteria set forth in the document: Suggested Practices for Raptor Protection on Powerlines--The State of the Art, 1981: Raptor Research Report #4, Raptor Research Foundation, Inc., 1981. Copies of this report may be obtained from the Raptor Research Foundation, Carpenter St. Croix Nature Center, 12805 St. Croix Trail, Hastings, Minnesota 55033. A "take" (including electrocution) of any species of raptor is prohibited under the provisions of one or all of the following: Migratory Bird Treaty Act (16 U.S.C. 701-718), the Eagle Protection Act (16 U.S.C. 66-668d) and the Endangered Species Act (16 U.S.C. 1531, et seq.).
103·12	4-157	4.4.7.4	The West Slope demand section should explain difference in flow patterns above and below Muddy Creek on the Colorado River and on the Blue River. Also there should be a discussion of impacts to fisheries in these areas.

Response

103·7 The discussion on p. 4-63 is referring to the results of the HEP evaluation. All of the wildlife value as documented by HEP would be mitigated at the site. We would agree that the HEP may not have evaluated all of the wildlife value, but did evaluate the most important values. A similar argument could be made for mitigation of any valuable resource, the higher the value the more difficult it is to mitigate "totally". The proposed mitigation reflects the best attempts of the Wildlife Work Group to mitigate all of the wildlife impacts.

103·8 As discussed in the section you refer to, a sediment control program would be part of the project (See Chapter 5.0 FEIS - Environmental Commitments) and it would reduce the amount of downstream siltation to insignificant levels that would not warrant a monitoring program. If for some reason the sediment control program did not work, an emergency monitoring program may be warranted.

103·9 The section referred to indicates that habitat values would be replaced "in-kind" using the IFIM methodology. Hence, the Service's mitigation goal for physical habitat replacement would be satisfied. The discussion also notes that the high quality of the Rock Creek habitat would not be replaced, which would mean that all habitat value would not be replaced as you note. The section further states that this would be an unavoidable adverse impact since the habitat value could not be totally replaced through any form of reasonable mitigation.

103·10 As noted in Section 4.1.1 SDEIS the impacts assessment is based, initially, on the Metro Denver Lease demand. Then, differences in impacts, if any, for the West Slope demand are addressed. The West Slope demand section (4.3.7.4) does not discuss impacts to other areas because they are the same as those discussed for these areas under the Metro Denver Lease.

103·11 We appreciate your comment. Any power line associated with the proposed projects will be constructed to prevent raptor electrocution.

Comment Letter 103

Response

103·12 There are no differences in flow projected for the Colorado River above Muddy Creek (See Response to Comment 103-2). Differences in flow on the Colorado River below Muddy Creek are presented in detail in Section 4.4.3.10 SDEIS (at the Kremmling and Dotsero gages). Differences in flow for the Blue River would be identical to those discussed in Section 4.3.3.4 for Rock Creek Reservoir, as noted in Section 4.4.3.4. There is no discussion of impacts to fisheries in these areas under the West Slope demand for the reasons cited in Response to Comment 103-10. Final hydrologic data for the Muddy Creek alternative are discussed in Section 1.4.3.6 of this FEIS.

Comment Letter 103

103·13	4-161	4.4.8.1	In Paragraph 1 you should list the cavity-nesting birds and estimate how many nests would be lost due to inundation. The Migratory Bird Treaty Act (16 U.S.C. 701-718) prohibits the "taking" of birds, eggs, nests, parts or products. Therefore, the significance of this adverse impact should be more fully analyzed.
103·14	5-13	5.2.4.2	This table shows only one variable for the HEP evaluation species: elk. All variables should be presented.
103·15	5-15	5.2.4	It is stated that the total estimated cost for management actions, surveys, planning, and monitoring would be $270,000. Is this the cost for a five-year period? What would happen after five years, and who would manage the property? Operation and maintenance cost for the life of the project should be included in the total cost of the Rock Creek and Muddy Creek alternatives.
103·16	5-19	5.3.3	Permanent monitoring plots should be included in the first part of the study. Study of phenology, pollinators, etc. is not necessary since these aspects were included in the doctoral dissertation by Dr. Jeffrey Karron (University of Colorado 1987). An inventory of potential shale habitat upstream along Muddy Creek should be substituted for Study No. 4. It needs to be emphasized that any studies involving transplanting and seeding are experimental procedures whose potential for success is unknown. Karron (pers. com.) has stated that seed germination is low and seed parasitism is high for the Osterhout milkvetch (Astragalus osterhoutii). Because of the experimental nature of the mitigation, the degree of mitigation of project impacts through transplanting is not certain.
103·17	5-21	5.3.4	Paragraph 1 states that a review of mitigation goals for wildlife was conducted. These goals should be presented in this section.
103·18	5-23	5.3.4.1	Paragraph one states that mitigation for the elk model would require 515 acres of mitigation land to replace the Habitat Units lost due to project implementation. Table 5.3.4.1 summarizes the Habitat Evaluation Procedures (HEP) analysis. This table shows the existing Habitat Suitability Index (HSI) for the mitigation site is .15 and that management of the mitigation site would increase the HSI to .8. However, management for 515 acres is not presented in the list of proposed habitat management techniques for the lower Muddy Creek Mitigation site.

4

Response

103·13 The section you refer to indicates the impacts would be insignificant. The reason for this is that considerable area of high bank habitat would remain below the proposed dam. In fact most of this habitat would be below the proposed dam. There is little indication that this type of habitat would be limiting following construction of the dam, therefore, relatively little change in nesting potential would result.

103·14 A more thorough explanation of the elk model can be found in Chapter 2.0 of this FEIS.

103·15 This cost estimate was for the first five years of development and initial management. This period of time is explained in more detail in the Muddy Creek Mitigation Plan (See Chapter 3.0 FEIS). It is intended that a long term management plan would be prepared at the end of the five year period to direct management for the duration of the project. The cost for operation and maintenance will not be known until that time, but the River District would be responsible for management of the area for the life of the project.

103·16 We appreciate your comments on the proposed mitigation plan. Your comments have been incorporated into the Final Mitigation Plan which is summarized in this FEIS (Chapter 3.0).

103·17 The mitigation goal was to replace all lost values with in-kind values. A discussion of goals has been included in Chapter 3.0 of this FEIS.

103·18 Please refer to Response to Comment 103-3. The difference is that 515 acres refers to the entire area and actual habitat manipulation is required in only a portion of that area to achieve the 0.8 HSI. Please see Chapter 2.0 FEIS where additional detail on the elk model is presented.

Comment Letter 103

103-19	5-25	5.3.4.2	This table shows only one variable for the HEP evaluation species: elk. All variables should be presented.
103-20	5-26	5.3.4	This section states that bottomlands would be fenced and grazing removed. However, the number of acres proposed for this management practice is not discussed.

Summary

In summary, we recommend the following be included in the Final Environmental Impact Statement:

1. The Service and the Colorado Division of Wildlife should be included in the proposed River Operation Meetings.
2. The Environmental Consequences chapter should address impacts resulting in changes in flow on the Williams Fork River and the Colorado River above Kremmling.
3. The Mitigation chapter should insure that all habitat units lost by project implementation are adequately mitigated with the proposed management practices.
4. Results of formal Section 7 consultation should be presented in the Final Environmental Impact Statement.

We appreciate this opportunity to comment. If we can be of further assistance, please contact Patty Schrader of our Grand Junction office at (303) 243-2778.

Sincerely,

LeRoy W. Carlson
Acting State Supervisor

cc: FWS/FWE, Salt Lake City
FWS/FWE, Grand Junction
FWS/BFA (ERT), Washington, D.C.
FWS/FWE, Denver
DOI, Denver
CDOW, Grand Junction
CDOW, Denver
EPA, Denver

5

Response

103-19 See Response to Comment 103-14.

103-20 This section in the SDEIS assumed that the entire bottomland uses for mitigation would be fenced. Details of fencing are provided in the Final Mitigation Plan for Muddy Creek which has been summarized in this FEIS (Chapter 3.0). Also, please see Response to Comment 101-3.

Comment Letter 104

US Department of Transportation
Federal Highway Administration
Region Eight

Colorado Division
Federal Highway Administration
555 Zang Street, Room 250
Lakewood, Colorado 80228

October 28, 1988

In reply refer to: HA-CO
434

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29597 W. U.S.40 - Suite 20
Steamboat Springs, Colorado 80487

Dear Mr. Schmidt:

Subject: Supplemental Draft Environmental Impact Statement
for Rock Creek/Muddy Creek Reservoir

We have reviewed the subject document as it relates to transportation facilities and offer the following comment for your consideration.

104-1 The Rock Creek Reservoir option would relocate approximately 1/2 mile of SH 134. Your alternative analysis should clearly document the proposed new alignment (of SH 134) avoids and minimizes environmental impacts.

Sincerely yours,

Leon J. Witman
Division Administrator

Response

104-1 The proposed new alignment for State Highway 134 is shown on Figure 2.4.1 and discussed in Section 2.4.1 SDEIS. The preliminary design considered Federal and State highway design standards. If a project is permitted, roadway modifications will be addressed in final design and will comply with all Federal and State highway standards and specifications.

Comment Letter 105

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

Ref: 8PM-EP

NOV 2 5 1988

David Harr
BLM, Kremmling Resource Area
116 Park Avenue
P.O. Box 68
Kremmling, Colorado 80459

Dear Mr. Harr:

The Region 8 office of the Environmental Protection Agency has completed it's review of the draft Wetland Mitigation Plan & Supplemental Draft EIS for Rock Creek/Muddy Creek and offers the following comments for your consideration. First we are pleased to see the project proponent's shift to Muddy Creek Reservoir since we believe it has fewer overall impacts to the environment than Rock Creek Reservoir.

Our environmental concerns associated with the Muddy Creek Reservoir center on the need to adequately mitigate the loss of 892 acres of wetlands. The Final Report of the National Wetlands Policy Forum recommends a national goal of "no overall net loss of the nation's remaining wetlands base, as defined by acreage and function." Further, they recommended the implementation of "stronger mitigation requirements within the regulatory programs so that taken as a whole, permitted conversions are fully offset by wetlands restoration or creation." We are concerned whether the proposed 390 acres of wetland mitigation is adequate to fully compensate for the loss of wetland functions, even assuming the proposed reservoir fully replaces all wetland functions except wildlife habitat.

105·1 The BLM, in the SDEIS, has approached wetland compensation through a modification of U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (HEP). While EPA recognizes the value of HEP in arriving at habitat values for various habitat types, our major concerns when using HEP to develop mitigation proposals for wetland resources are 1) the difficulty this method presents in quantifying non-habitat wetland functions, and 2) the subjective nature of HEP assumptions which often result in more mitigation for game species at the detriment of non-game species. The latter concern is especially true when an appropriate indicator species is not available for the habitat type being impacted. EPA believes that non-wildlife habitat functions are at least equal in importance to wetlands wildlife habitat functions.

Response

105·1 We appreciate your comment. The Wildlife Work Group was very aware of the potential problems with the use of HEP for mitigation. Please see Chapter 2.0 FEIS for a more detailed discussion on other wetland functions and how they would be impacted by the proposed dam. The reservoir would replace all functional values except wildlife values.

In response to your concern, the Wildlife Work Group utilized another model in the HEP analysis to assess wetland impacts. As a result, about 43 acres of additional wetlands mitigation will be required. For details see the final mitigation plan (summarized in this FEIS as Chapter 3.0).

Since the goal of mitigation was to replace all values lost at the reservoir site, the proposed mitigation and the reservoir would fully mitigate the impacts to wetland values.

Comment Letter 105

105·2 In the specific case of the SDEIS, we would like to point out several areas where we believe the HEP evaluation could be improved to better achieve a balanced habitat equal to, or exceeding that of the wetlands to be lost. In the case of the Rock Creek mitigation plan, more effort should be placed on methods which would improve the mitigation site habitat suitability to levels which would at least equal those which would be lost. For example, the HSI goal in the mitigation area for beaver and yellow warbler should at least equal that which will be lost. The SDEIS mitigation plan for Muddy Creek is a more appropriate approach which results in better habitat suitability in the mitigation area than the affected area.

105·3 As a result of the review of mitigation plans and meetings since the publication of the SDEIS, it has become apparent that the HEP analysis being used in the Rock Creek/Muddy Creek NEPA process has been in a constant state of modification, and is still being modified. The NEPA document needs to provide the reader with a clear, concise review of the methods which have been used to arrive at measurement of impacts and the associated development of the mitigation plan. EPA is concerned that this important function of NEPA has not been met. EPA has reviewed three documents to date, and even the total number of wetland acres to be affected has changed in each document. For example, as a result of our November 21, 1988, meeting, we are now aware that 892 acres of wetlands would be inundated by the Muddy Creek Reservoir. This number is greater than those contained in either the DEIS or SDEIS. Further, we now understand that the mitigation plan proposes to completely mitigate the habitat values lost by enhancement of 390 acres of existing wetlands. While we support the wetland enhancement effort, we remain concerned about the net loss of 892 acres of wetlands in the Muddy Creek area.

105·4 As we pointed out in our October 28, 1988, letter, we believe the final EIS needs to better display exactly what the wetland losses are and clearly describe the proposed mitigation. Both should be explained from an acreage as well as a functional values perspective. We appreciate you, the Forest Service, the Corps, the Fish and Wildlife Service, the Colorado River District and their consultants attending our November 21, 1988, meeting to discuss the wetlands issues. We found the discussion helpful in better understanding how Bio/West did their HEP analysis and applied the elk model. We look forward to receiving the maps and other information. Hopefully, at that time we will be able to better understand the HEP process which was used at Muddy Creek. We will review them as quickly as possible and call you and the consultants with any questions or remaining concerns.

Another issue which has been raised as a result of EPA's comments on the most recent mitigation proposals concerns whether or not EPA should be allowed to raise "new" issues at this late

2

Response

105·2 As you note, the development of a detailed mitigation plan, which was done for the Preferred Alternative, Muddy Creek, is a better approach than the less detailed review conducted for the SDEIS. We agree and if Rock Creek were permitted, a detailed plan would be prepared for that alternative.

105·3 We appreciate your comments and your participation in meetings to resolve these questions. Numbers of acres of wetlands have changed at Muddy Creek because the proposed reservoir size changed between the DEIS and SDEIS, a major reason for preparing the SDEIS. For more detail, please see the final mitigation plan for the Muddy Creek alternative which is summarized in this FEIS (Chapter 3.0). Also see the updated discussion of the HEP analysis results in Chapter 2.0 FEIS.

105·4 Please see Chapter 2.0 of this FEIS where more detail on wetland impacts is included. Also, see Response to Comment 105-1.

Comment Letter 105

point in the NEPA process. It has been implied that EPA's concern with the elk habitat models was not raised previously. We would like to point out that our November 1986 comments on the preliminary DEIS clearly indicate that EPA disagreed with the use of the elk habitat model for sedge/rush wetland habitat types. At that time we suggested options we would consider in lieu of a representative model for the sedge/wet meadow habitat type. We also noted in August of 1987 the Consultants were going to discuss EPA's Wetland Mitigation Policy at the Wildlife/Wetlands Work Group. EPA has been a willing partner in the Rock Creek/Muddy Creek NEPA process, as our resources allow. We hope to continue this involvement in the future.

If you have any questions, or if we can be of further assistance, please contact Dennis Sobocki (293-1460) or Dave Ruiter (293-1581).

Sincerely,

Robert R. DeSpain

Robert R. DeSpain, Chief
Environmental Policy Branch
Office of Policy & Management

cc: Patty Schrader, USFWS
Ray George, USFS
Pete Lagasse, Resource Consultants
Paul Holden, Bio/West

Response

STATE AGENCIES and REPRESENTATIVES

Comment Letter 106

STATE OF COLORADO ROY ROMER, Governor

DEPARTMENT OF NATURAL RESOURCES

HAMLET J. BARRY III, Executive Director
1313 Sherman St. Room 718, Denver, Colorado 80203 866-3311

Geological Survey
Board of Land Commissio
Mined Land Reclamation
Division of Minerals
Oil and Gas Conservation
Division of Parks & Outdo
Soil Conservation Board
Water Conservation Board
Division of Water Resour
Division of Wildlife

November 22, 1988

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 West US 40 Suite 20
Steamboat Springs, CO 80487

David Atkins, Area Manager
Bureau of Land Management
Kremmling Resource Area
1116 Park Avenue
Kremmling, CO 80459

Gentlemen:

The Supplemental Draft Environmental Impact Statement for the Rock Creek/Muddy Creek Reservoir identifies the 60,000 acre feet Muddy Creek dam site as the preferred alternative. Based on our earlier review of the Draft EIS and a more recent review of the Supplemental Draft EIS, state agencies support the preferred site.

This position is based primarily on our findings that: (1) impacts to the high value fishery at Rock Creek could not be adequately mitigated, and (2) impacts, particularly to fish and wildlife resources, at the Muddy Creek site can be successfully mitigated. We believe that project impacts have been well documented in the Supplemental Draft EIS and that adequate mitigation has been identified. We look forward to continued cooperation with the project sponsors and federal agencies as more detailed planning occurs.

Our specific comments relate to wildlife, plant species, highways, water resources, cultural resources and recreation.

WILDLIFE. The Division of Wildlife has worked closely with the project proponent and consultant to develop a mitigation plan that would reduce adverse impacts to deer, elk and wetlands to acceptable levels. The plan summarized in Chapter 5 of the Supplemental Draft EIS meets these objectives. In addition to adequate mitigation of wildlife impacts, the Muddy Creek project would create habitat for two new fisheries - one in the reservoir and one in the tailwater area. For these reasons, the Division of Wildlife prefers development at Muddy Creek over development at Rock Creek.

106-1 The cost for establishing a fishery at Muddy Creek Reservoir was not

Response

106-1 The cost of the fishery in Muddy Creek Reservoir would be borne by the River District the same as discussed for Rock Creek on p. 4-69. This point was inadvertently left out of the Muddy Creek discussion. See Chapter 2.0 of this FEIS. Also, for enhancement of the fishery downstream of the reservoir in the proposed mitigation area, the River District will apply for an enhancement grant from Colorado Department of Natural Resources.

Comment Letter 106

November 22, 1988
page two

106·1 included as a mitigation cost because the fishery would not be considered a mitigation measure. The cost, however, would be real. The Division of Wildlife cannot commit to creating and maintaining a fishery at this project. Division policy has been that fishery costs associated with new reservoirs should be born by the developer.

Specific comments on fish and wildlife issues are:

106·2 Page 2-44, Table 2.7.1. Since Egeria Creek would not mitigate the loss of the Rock Creek trout fishery, it would also not fully mitigate the associated recreational loss.

106·3 Page 4-80, paragraph 3. The Division of Wildlife does not have plans to monitor big game losses due to migration over the reservoir ice. Incidents may be reported to the Division in the normal course of business.

106·4 Page S-8, paragraph 4. Rock Creek is stocked at the Highway 134 crossing with catchable sized rainbow trout. This stocking would continue if the Rock Creek Reservoir were built. The Division does not stock fish in the proposed reservoir basin. Because hatchery and fish rearing units are geared to produce rainbow trout, they produce only limited quantities of brown trout which are stocked mostly at sub-catchable size. There would be an additional cost for stocking catchable brown trout in the tailwater area.

106·5 Page S-26, paragraph 3. Different costs are presented for treating range in the project area - $200/acre for the uplands adjacent to the proposed Muddy Creek Reservoir and $100/acre for the areas north and south of Wolford Mountain. Reasons for the difference should be explained.

106·6 Page S-27, paragraph 3. Some vegetative manipulation may also be necessary on the north side of Little Wolford Mountain once specific sites for mitigation are selected. Because much of this area already has a desirable mix of plant species, the acreage needing treatment should be small.

106·7 The livestock use of treated areas referred to in the same paragraph could greatly reduce the benefits of this mitigation measure to deer and elk. The measure will be effective only if livestock grazing is carefully managed, for example by using deferred grazing, rest-rotation or even some exclusions. The Division would be very concerned if livestock utilization increased on the grazing allotments which include the treatment areas.

HIGHWAYS. The proposed reservoir on Muddy Creek would inundate approximately three-fourths of a mile of US 40. It appears that the

Response

106·2 Egeria Creek would replace the fishermen days of stream fishing that would be lost at Rock Creek, but the quality of the fishing and the overall experience probably would not be of the same quality as that found at Rock Creek.

106·3 This would be acceptable to the Forest Service since the chance of this impact being a major concern for big game is relatively small.

106·4 It was expected by the Forest Service that rainbow trout would be stocked below the proposed dam, not brown trout. Rainbows stocked near the highway would probably rather quickly end up in the reservoir, so stocking so near the reservoir would be questionable. If Rock Creek were permitted, a detailed fishery management plan should be developed between the Forest Service, Division of Wildlife and River District.

106·5 The areas that would be treated would be determined in the field by BLM and CDOW. See the final mitigation plan which is summarized in Chapter 3.0 of this FEIS.

106·6 See Response to Comment 106-5.

106·7 The Bureau of Land Management would manage these allotments to assure that the additional forage is reserved for big game.

Comment Letter 106

November 22, 1988
page three

existing horizontal alignment could be retained and the road grade raised above the maximum reservoir level reached during passsage of the design flood. If that proves to be an adequate remedy to the road inundation, Highway Department design standards would call for culverts to be elevated and banks to be riprapped along the raised grade. Road reconstruction would be financed by the project proponents.

106·8 Any new or modified access points to US 40 required for reservoir construction or recreation development will need to comply with the Colorado Access Code. This requirement should be cited in the Final EIS.

106·9 WATER RESOURCES. As mentioned in our October 21, 1981 comments on the Draft EIS, the discussion of potential impacts to water resources would be improved if an inventory of affected water rights were included in the document. This is especially useful for comparing impacts of the two alternatives.

CULTURAL RESOURCES. The Supplemental Draft EIS adequately addresses cultural resource issues. We recommend two corrections in the text.

106·10 On page 4-90, Section 4.3.13.1, third paragraph, the last sentence asserts that neither moving nor recording/demolishing the Stage Stop would be a significant impact. Because both mitigating measures would impact the site, we suggest the sentence be rewritten to read: "From a cultural resource standpoint, both options should be acceptable mitigation measures."

Also in that paragraph, change the word "value" to "record."

PLANT SPECIES. The Colorado Natural Areas Program helped develop mitigation measures for impacts to Osterhout's milkvetch and supports the implementation of the measures reported in the Supplemental Draft EIS.

106·11 RECREATION. An effort should be made to quantify the effects of the Muddy Creek project on float-boating, particularly on the Blue River below Dillon Reservoir. This is important because of the significant cumulative impacts associated with the possible construction of both Muddy Creek and Two Forks. Mitigation options, such as providing enhancement flows during low water conditions, should be identified.

106·12 The Division of Parks and Outdoor Recreation has expressed a willingness to consider managing a recreation facility at either Rock Creek or Muddy Creek. With that in mind, the Division notes the lack of an entrance/contact station at the main-use area of the proposed Muddy Creek Reservoir. The Division currently attempts to operate such a facility at each of its areas and would recommend one at Muddy Creek.

106·13 The Division prefers that campsites be designated and that campgrounds consist of loops containing 25 designated campsites. This layout facilitates management and is cost-effective.

Response

106·8 Impacts on U. S. Highway 40 are identified in Section 2.3.2 and evaluated in Section 4.4.17. If a project is permitted the proponent will proceed with final designs and comply with all Federal and State standards, permits, and review requirements. The proponent will bear the costs of all necessary modifications to the State highway system.

106·9 The proponent has or has applied for the necessary conditional storage rights on Rock Creek and Muddy Creek to support the proposed reservoirs. A complete water rights listing for either Rock or Muddy Creek can be obtained directly from the Colorado State Engineer and it was not considered necessary to add to the volume of the EIS by including such a listing. The potential for other conditional storage rights being perfected on Rock Creek and Muddy Creek were considered in the reservoir yield analyses.

106·10 We appreciate your comment, that is the intent of the questioned section.

106·11 As discussed in the SDEIS, quantification of flows below Dillon Reservoir is difficult since Denver determines the releases. Relatively little effect during high flow periods would result, especially during high water years like much of the mid-1980's when much of the commercial floatboating was initiated. Also, see Response to Comment B-6.

106·12 If the Muddy Creek Alternative is permitted, the River District and the BLM would develop a detailed plan in coordination with the Division of Parks and Outdoor Recreation. If Rock Creek were permitted, the Forest Service would manage the campground and associated facilities.

106·13 See Response to Comment 106-12.

Comment Letter 106

November 22, 1988
page four

Grand County may wish to provide recreation facilities at Muddy Creek Reservoir. The Division, if it were to manage the area, will coordinate facility planning with Grand County and other groups.

In conclusion, we appreciate the opportunity to review the Supplemental Draft EIS and thank you for your diligence in addressing the important issues raised during the previous review. State agencies will be happy to work with you and the project proponent as project planning continues.

Sincerely,

Hamlet J. Barry III
Executive Director

cc. State Agency Reviewers

3374A

Response

Comment Letter 107

United States Senate
WASHINGTON, DC 20510

November 21, 1988

Mr. Dave Atkins
Hearing Officer, Bureau of Land Management
United States Department of the Interior
1116 Park Avenue
Kremmling, Colorado 80459

Dear Mr. Atkins:

I understand the Bureau of Land Management is accepting comment on proposed construction of a reservoir on Rock Creek or Muddy Creek.

107-1 Diverse water interests representing Colorado's East and West Slopes successfully negotiated a settlement to extensive litigation regarding water use in Colorado. Construction of either Rock Creek or Muddy Creek Reservoir is key to realizing the negotiated settlement and continuing unprecedented cooperation among East and West Slope water users.

The importance of this reservoir cannot be overstated in the resources, time, energy and money it can save for Colorado and its citizens working together instead of litigating.

Thank you for your careful consideration of this matter so important to Colorado.

Sincerely,

William L. Armstrong

WLA/ck

cc: Mr. Robert F. Burford

Response

107-1 Thank you for your comment.

Comment Letter 108

BEN NIGHTHORSE CAMPBELL
3D DISTRICT COLORADO

COMMITTEES
AGRICULTURE
INTERIOR AND INSULAR AFFAIRS
SMALL BUSINESS

Congress of the United States
House of Representatives
Washington, DC 20515

November 21, 1988

Dave Atkins, Hearing Officer
Bureau of Land Management
U.S. Department of the Interior
1116 Park Avenue
Kremmling, Colorado 80459

RE: Rock Creek-Muddy Creek
Supplemental Draft Environmental
Impact Statement

Dear Mr. Atkins:

108-1 I am writing to support the Colorado River Water Conservation District's plan to construct the 30,000 acre-foot Muddy Creek Project. I am pleased that Muddy Creek has been chosen as the "preferred alternative" because it appears that the impacts of the project can be successfully mitigated.

I support the district's efforts because they have worked closely with the town of Kremmling and Grand County to ensure that the project will provide many recreational benefits, thus fitting into the area's economic development agenda.

I have gone on record in opposition to the Two Forks/Williams Fork Project. Having travelled extensively throughout the Third Congressional District I know there is overwhelming opposition to that project. I know of no such organized opposition to the Muddy Creek Project.

If the Muddy Creek Project is built, it is my hope that the reservoir will become part of a comprehensive system of water exchanges which can be coupled with water conservation to make the Two Forks Project unnecessary.

In closing, I continue to support water development projects which use Western Slope water to benefit people on the Western Slope.

Sincerely,

Ben Nighthorse Campbell
Member of Congress

Response

108-1 Thank you for your comment.

COUNTIES, MUNICIPALITIES, and DISTRICTS

Comment Letter 109

TOWN OF GRANBY
Granby
Zero & Jasper Streets
Granby, Colorado 80446
Phone (303) 887-2901
P.O. Box 17

November 10, 1988

Dave Atkins, Resource Area Manager
Kremmling Resource Area
Post Office Box 68
Kremmling, Colorado 80451

Dear Mr. Atkins:

109-1 The Town of Granby strongly supports the 30,000 acre foot Muddy Creek Alternative of the Supplemental Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir.

The board chooses Muddy Creek because the favorable recreation and tourism benefits far outweigh the negative impacts to local agriculture. The temporary addition of one hundred twenty construction jobs is also a significant benefit to Grand County's economy for approximately two years.

Thank you for considering Granby's comments.

Sincerely,

Jerry L. Roberts
Mayor

JLR:oa

Response

109-1 Thank you for your comment.

Comment Letter 110

Response

GRAND COUNTY BOARD OF COMMISSIONERS

RICHARD "DICK" LEONARD
District I, Fraser 80442
W.A. (BILL) NEEDHAM
District II, Granby 80446
PAUL J. OHRI
District III, Kremmling 80459

COURT HOUSE, HOT SULPHUR SPRINGS, COLORADO 80451
PHONE: 303-725-3378
303-725-3347

R. HOWARD MOODY
County Manager

September 28, 1988

Dave Atkins, Resource Area Manager
Kremmling Resource Area
P O Box 68
Kremmling, CO. 80459

RE: Supplemental Draft Environmental Impact Statement (SDEIS)
for the proposed Rock Creek/Muddy Creek Reservoirs.

Dear Dave:

The Grand County Board of County Commissioners has been involved in the initial water filings and studies concerning the Wolford Mountain Reservoir (Muddy Creek) since December 1981. The Board recognizes that the reservoir will help to alleviate many water shortage problems for Grand County and the West Slope of Colorado. Also, the reservoir has the potential of providing a needed recreation area and tourist economy in order to help alleviate the local downturn in mining and agriculture.

110-1 The Board has provided written comment previously in favor of the Muddy Creek site (Wolford Mountain) over the Rock Creek site. We certainly concur with the SEIS in identifying the 60,000 acre-foot Muddy Creek site as the preferred alternative. We further recommend that the BLM Kremmling Resource Area Management Plan be amended to accomodate the reservoir. The emphasis of the change in the plan should recognize a recreation priority in lieu of livestock grazing and other uses.

Grand County will review the project under the permit authority granted by the State of Colorado Areas and Activities of State Interest (1041) process). The review will take place prior to request for a 404 U.S. Army Corps permit. The County will analyze all aapects of the project and its effects on the local area and the region. We recommend that

110-1 Thank you for your comment.

Comment Letter 110

Response

the Muddy Creek alternative be permitted under the Bureau of Land Management process.

110-2 Also, in future reference to the Muddy Creek site, we would recommend that the original designation of "Wolford Mountain Reservoir" be used to identify the project.

Sincerely,

W. A. Needham,
Chairman

110-2 Thank you for your comment.

Comment Letter 111

GRAND COUNTY
WATER and SANITATION DISTRICT NO. 1
P.O. BOX 3077
WINTER PARK, COLORADO 80482
(303) 726-5143

October 4, 1988

Mr. Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 W. U.S. 40, Suite 20
Steamboat Springs, CO. 80487

RE: Muddy Creek
Environmental Impact Statement

Dear Mr. Schmidt,

111-1 Grand County Water and Sanitation District Board wishes to go on record supporting the construction of Muddy Creek Dam and Reservoir. This facility will have the multiple purpose of providing storage for the future growth in Western Colorado, meeting a near-term water supply shortage in metrocolitan Denver, creating an income source for Western Colorado to solve the water supply problems, and creating a first class recreational facility.

We have purchased 250 A.F. of Windy Gap water which is benefical to us. A project would firm up our Windy Gap water. When Granby spills our Windy Gap water in a wet year, our water could be made up out of Muddy Creek.

There are few opportunities in which the Forest Service can benefit, plus meet the needs of many by approving this single action.

Sincerely,

Dennis L. Ducommun

DLD/pjm

Response

111-1 Thank you for your comment.

Comment Letter 112

Town of Kremmling
KREMMLING, COLORADO 80459
303/724-3249

November 18,1988

Mr. Dave Atkins
Resource Area Manager
Kremmling Resource Area
P.O. Box 68
Kremmling, Colorado 80459

Dear Mr. Atkins:

112 1 After a careful review of the Supplemental Draft Environmental Impact Statement related to Muddy Creek Reservior, the Town of Kremmling, Colorado agrees with the statement and is in full support of its content.

Based upon the current economic climate, in the region and specifically the Town of Kremmling, we would urge and support construction of the Muddy Creek Dam Project. The town would further urge, a start date in the early Spring of 1990 or earlier.

The project would be a positive contribution to the area while providing needed revenues and significant economic impact, for our town and the entire area.

Very truly yours,

John Pressley
Mayor

Response

112-1 Thank you for your comment.

Comment Letter 113

KREMMLING
SANITATION DISTRICT
724-3249 : Sanitation Building : KREMMLING COLORADO
Zip Code 80459

September 12, 1988

United States Department of Interior
Bureau of Land Management
P.O. Box 68
Kremmling, CO 80459

To Whom It May Concern:

As a Agency four miles below the Muddy Creek Dam Site, we at the Kremmling Sanitation District would like to express our concern in regards to any impact the future water flow from the dam will have on our operation.

113-1 We do not have the expertise to make such a study, or the finances, but if we are impacted by any changes or we would have to make any upgrade improvements because of the dam, we should be notified now and arrangements made so those improvements can be made.

If any financial assistance is available for those improvements, it should also be brought out.

If anymore information is needed, feel free to contact me at the Kremmling Sanitation office at 724-3249.

Sincerely,

Robert Blandford
President

RB/ekc

Response

113-1 We understand that the Kremmling Sanitation District does not take water from or discharge water to Muddy Creek. Thus, flow changes as a result of the proposed project will not effect District operations. In regard to any discharge from the District's evaporation ponds which might reach Muddy Creek, Muddy Creek Reservoir operations include a 13 cfs (or inflow) minimum stream flow below the proposed dam. For most months during the period of record analyzed this would result in an improvement of low-flow conditions (See Appendix A, Table A.5 SDEIS). During historic low-flow months flows in Muddy Creek have dropped below a 13 cfs level. Thus, the minimum streamflow would, in those months, create a flow regime of <u>at least</u> the natural flow condition.

Comment Letter 114

Mesa County Water Association
P.O. Box 572 Fruita, Colorado 81521

November 22, 1988

Mr. David Atkins, Area Manager
Bureau of Land Management
Kremmling Resource Area
1116 Park Avenue
Kremmling, CO 80459

Dear Mr. Atkins:

Thank you for this opportunity to respond to the <u>Supplemental Draft Environmental Impact Statement for Rock Creek/Muddy Creek Reservoir of Routt and Grand Counties, Colorado</u>. Mesa County Water Association appreciated the opportunity to testify during your public hearing in Grand Junction. Mesa County Water Association also mailed written comments November 9, 1987 to Mr. Jerry Schmidt, Forest Supervisor Route National Forest U.S.D.A., concerning the <u>Draft EIS Rock Creek/Muddy Creek Reservoirs</u>. The major concerns addressed in that letter were the detrimental impact on water quality downstream of the proposed Muddy Creek Dam and suitability of the Muddy Creek site. The concerns have not been allayed by the "Supplement." Four areas of concern exist:

1) Priority date of Green Mountain Reservoir vs. the priority dates of the proposed Rock Creek/Muddy Creek Reservoirs.

2) Flow reductions in the Blue River from Dillon Reservoir to the Colorado River and in the Colorado River from upstream of the Blue River to Kremmling (Muddy Creek) and McCoy, Colorado (Rock Creek).

3) Changes in water quality -- BLM Land Use policy.

4) Overall impacts.

1) PRIORITY

1.3.7 page 1-17 <u>River District - Denver Water Board Leases</u> (Thank you for this new Section.)

1.5.3 page 1-22 <u>John Use Reservoir and Green Mountain Exchange Projects</u>. These two sections do not address priority in relation to a compact call.

What arrangements are provided for water release from Green Mountain Reservoir if there is a compact call on the Colorado River?

114-1 How will such a call be administered and by whom?

Could demand by the Eastern Slope be difficult to curtail, as in 1977, even under a signed agreement?

Response

114-1 Questions regarding administration of a compact call on the Colorado River can only be answered by the Colorado State Engineer. Administration of water rights in Colorado is a function of the State Engineer not the Federal Agencies involved in the preparation of this document.

Comment Letter 114

1.2.3.a page 1-9 Operational Enhancement, paragraph 2:

"In July of each year, the Bureau of Reclamation would make a determination as to whether or not Green Mountain had received its legal fill from the intervening inflow. If not, Denver was required to release sufficient water from Dillon to make the legal fill. In 1977, one of two years in which this has happened, Denver released approximately three-fifths (15,000 ac. ft.) of this fill deficit from Dillon Reservoir and two-fifths (10,000 ac. ft.) from Williams Fork Reservoir."

114·2 Has hydrologic modeling of the river basin been accomplished to determine the reality of such a compact call?

2) FLOW REDUCTIONS

2.2.2.6 page 2-7 Projects Upstream of Kremmling on the Blue and Colorado Rivers, paragraphs 1-4:

When senior rights downstream necessitate a call on the river, under the proposed project, the call would be answered in part by 4 water release from Rock Creek/Muddy Creek Reservoir not the upstream Green Mountain Reservoir.

114·3 What recourse would water users on the Blue and Colorado Rivers upstream of McCoy or Kremmling have to maintain their suitable stream flows for irrigation diversion, recreational and commercial purposes?

3) WATER QUALITY AND BLM LAND USE POLICY

The suitability of a dam on Muddy Creek is questionable. Muddy Creek flows through geologic formations containing soluble calcium and sulfate and its stream water quality is an exception to the good overall surface water quality found in the Colorado River Basin. This important detrimental feature of Muddy Creek is noted in numerous instances in the S.D.E.I.S.:

3.2.2.2	page 3-5	Site Geology, paragraph 1.
3.3.2	page 3-13	Muddy Creek Soils, paragraph 1.
3.3.2.1, 3.3.2.2		Soil Associations
3.4.3.2	page 3-47	Water Quality, Muddy Creek, paragraph 1-4.
	page 3-49	paragraph 4, Turbidity. Page 47-52.
3.4.3.3	page 3-52	Colorado River, paragraph 1.

The local geology and soils give Muddy Creek its existing chemical character. It is a calcium sulfate type water. The state sulfur standard of 250 mg/L was exceeded in 6 out of 13 water quality samples in the 1986 water year. The six excesses were: 280 mg/L (2) x 400 mg/L (2) x 410 mg/L and 430 mg/L.[1] The Colorado water year 1987 had more excesses than those of 1986.

[1] U.S.G.S. Water Resources Data Colorado Water, 1986, page 96.

Response

114·2 A compact call has been considered in the hydrologic modeling presented in the DEIS or SDEIS. (See Response to Comment 114-1).

114·3 Only a substitution of water between the proposed reservoir and Green Mountain is being contemplated (See Section 2.4.7 SDEIS). If any senior rights were injured, recourse would be through the State of Colorado water rights system.

Comment Letter 114

Specific conductance ranged from 245 to 1150 microSiems/cm with 10 of the 13 readings over 700 microSiems/cm.[3] These numbers indicate a range of Total Dissolved Solids (T.D.S.) from 184 mg/L to 836 mg/L.[3] During the 1987 water year, the specific conductance ranged from 275 uS/cm to 1520 uS/cm or from about 206 mg/L to 1140 mg/L. The T.D.S. averaged 500 mg/L. This is the chemical nature of the water flowing in Muddy Creek and into the Colorado River at Kremmling.

3.4.3.3 page 3-52 Blue River (Thank you for this new section.)

Build a dam and new situations are created.

"Among the processes that affect the chemical and physical properties of water impounded are:

1) the relationship among inflow, outflow, and storage in the reservoir,
2) the leaching of minerals from rocks and soils inundated,
3) the precipitation of minerals from water of the reservoir,
4) the annual limnological cycle, and
5) the concentration of minerals due to evaporation."[4]

For example: Highline Lake in western Mesa County contributes an annual salt load of 24,000 T to the Colorado River by leaching.[5]

4.4.3.5 Metro Denver Lease – Muddy Creek Water Quality
page 4-127 Muddy Creek Reservoir, last sentence, paragraph 2:

"The data base and the results of water quality models used... indicate that there could be a potential for water quality problems in Muddy Creek Reservoir."

5.3.2 page 5-9 D.E.I.S. Water Quality

"...water quality changes downstream and in the reservoir need to be better determined before specific mitigation can be proposed."

Compare this statement with

5.3.2 page 5-17 S.D.E.I.S. Water Quality

114·4 "There is a potential for water quality problems"...as above BUT NO mention of any mitigation being proposed. Will there be mitigation?

[2] Ibid., page 96.

[3] microSiems/cm multiplied by 0.75 obtain approximate T.D.S.

[4] U.S.G.S., W.S.P. 2058, page 29, Flaming Gorge

[5] Colorado River Basin Salinity Control Project, Grand Valley Unit, Stage Two Development, Final Environmental Impact Statement, DOI Bu. Rec., May 23, 1988, page 65.

Response

114·4 The SDEIS discloses potential problems with chemical and physical integrity of Muddy Creek Reservoir (see, for example, Table 2.7.1 SDEIS), and lists as a mitigation requirement modeling and monitoring during design and early years of operation. The requirements of a monitoring program are outlined in Section 5.3.2 as are the data requirements for reservoir modeling. The proponent has sponsored a detailed water quality modeling study of the proposed Muddy Creek Reservoir by the USGS. Preliminary results indicate that, while the study will provide more detailed quantitative data, the conclusions will not be substantially different from those presented in the SDEIS. Any permit will contain requirements for mitigation should the monitoring and modeling committed to in the SDEIS reveal a water quality problem in the reservoir.

Comment Letter 114

4.4.3.5 page 4-129 Muddy Creek below the Dam paragraph 2.

"There would be no measurable change in water quality in the Colorado River as a result of the construction of Muddy Creek Reservoir."

How is this broad statement quantified and is it justified when followed by paragraph 3?

"Salt loading, reflected by increases in down stream salinity is a potential problem with the proposed Muddy Creek site because it is underlain by shales that are known to contain fairly high levels of salts. When the reservoir would be full, water would seep into the surrounding soil and rock and dissolve the salts that were present. When the reservoir would be subsequently lowered, this 'bank storage' would come back out of the soil and bring with it the dissolved salts..."

114-5 and page 4-130 paragraph 1

"...The Cumulic Cryaquolls, which are the primary soils of the Muddy Creek bottomland, had one of the highest readings for all three samples... These soils should not contribute much to the bank storage since they would primarily occur on the bottom of the reservoir... Therefore, it appears that salt loading would occur with the reservoir, but since the predominant soils affected by bank storage are fairly low in salt, the overall loading would not be excessive, and most of the loading would occur during the first few years of the reservoir's life."

Does this statement take into consideration the data from Table 4.4.2.1, page 4-99? I.e. 92% of the land inundated, 1,331 acres, is of the Cumulic Cryaquolls-Tine soil association. It will be 15% of the shoreline of a filled reservoir. 43 acres or 3% of the Harsha-Leavitt will be inundated. This 43 acres stretches into 50% of the total shoreline for a length of 13.1 miles. Is the volume of water in the reservoir static? Or will it fluctuate? Where is the line between the Harsha-Leavitt and the Cumulic Cryaquolls-Tine associations? The test procedures, observations, and conclusions lack a degree of credibility.

4.4.3.5 page 4-130 Muddy Creek below the Dam paragraph 4.

"Analyses of the impacts of the proposed reservoirs were conducted by the USDI Bureau of Reclamation's Colorado River Water Quality Office for the impacts at Imperial Dam. The assumptions are as follows:

Reservoir Loading: Muddy Creek 2,000 tons/year"

How is this figure determined?

114-6 What does it represent?

What is the anticipated increase of T.D.S. or tons of salt loaded due to leaching? and

Response

114-5 The statement referred to is a qualitative judgment based on a consideration of detention time in the proposed reservoir and sediment characteristics of the Muddy Creek drainage. A more quantitative evaluation is presented in the paragraphs of Section 4.4.3.5 which follow the referenced statement and which describe the results of salt loading tests.

Please refer to the Grand County Soil Survey (USDA-SCS 1983) as the source of technical information on soils in the reservoir area. Soils are generally distributed according to parent material and topography. In the case of the Muddy Creek reservoir area, the boundary between the Harsha-Leavitt and the Cumulic Cryaquolls-Tine associations is roughly below but parallel to the surface of the proposed reservoir. The reservoir shoreline would be parallel to and within the Harsha-Leavitt association along a major portion of the shoreline distance. Since the reservoir would not fluctuate greatly, (10-15 vertical feet) on an annual basis, only about 200 acres of the Cumulic Cryaquolls-Tine associations would generally be exposed. Therefore, some salt loading from the Cumulic Cryaquolls-Tine association would occur from this soil type, particularly in the first few years of reservoir operation. This factor was considered in the calculations of salt loading.

The soil sample design was implemented to sample all soil types within the reservoir and along its shoreline. The number of sample points per soil type was generally proportional to the area of inundation and length of shoreline crossing a given soil type to provide for a representative sample of soils. Therefore, adequate sampling was implemented to characterize soil salinity and make logical and reasonable inferences about salt loading.

Further, review of other reservoirs in the general vicinity of the proposed Muddy Creek reservoir indicates that salt loading of downstream waters is not a significant problem. A specific example includes Green Mountain Reservoir which occurs on similar soils and parent materials as the Muddy Creek site. Therefore, based on the soil salinity analysis accomplished for this project and the results and experiences from similar reservoir projects in the area, construction and operation of the Muddy Creek reservoir is not expected to cause a significant increase in salt loading of Muddy Creek and the Colorado River.

Comment Letter 114

What is the volume of loss of water due to evaporation?

114-6 How is this reflected in increase salt concentration?

"Impact at Imperial Dam: Muddy Creek... +1.6 mg/L"

What does this increase mean? And is it directly related to the reservoir?

114-7 A diversion of 15,000 ac. ft., as proposed by the Metro Denver Lease from Dillon Reservoir would increase salinity at Imperial Dam by 1.6 mg/L. I.e. 1.5 x 1.07 = 1.6 mg/L. [salinity increases 1.07 mg/L for each 10,000 ac. ft. of depletion upstream (out of basin diversion) from Imperial Dam][8]

114-8 The BLM is one of the principal permitting agencies involved with the site selection and permitting process for this project. The dam site C on Muddy Creek is located on land administered by the BLM. The resulting reservoir would inundate 1,447 acres of soils derived in the most part from marine shales. Salt loading will occur to an extent not yet determined. The quality of water impounded and released will be of poorer quality than that stored in Rock Creek or currently in Green Mountain. Please refer to 5.5.3.5, page 120-131.

A review of the following sections and paragraphs of the SDEIS:

1.7.2	page 1-25	Bureau of Land Management Resource Management Plan - Kremmling Resource Area
2.5.3	page 2-37	Resource Management Plan, paragraph 2.
3.10.3	page 3-92	Muddy Creek
4.4.9	page 4-163	Land Use Plan
4.4.9.1	page 4-163	Anticipated Impacts - Metro Denver Lease Demand

does not refer in any instance to "A Report to Congress, July, 1987," Salinity Control on BLM Administered Public Lands in the Colorado River Basin.

This report was prepared by CDI - BLM in

"...response to the 1984 amendment to the Colorado River Basin Salinity Control Act (PL 98-569). Section 203 (b) (3) directed the Secretary

...to develop a comprehensive program for minimizing salt contribution to the Colorado River from lands administered by the Bureau of Land Management (BLM) and submit a report which describes the program and recommended implementation actions to the Congress and to members of the advisory council established by Section 204 (a) of this title by July 1, 1987.

Water from the Colorado River supports the municipal and industrial needs of over 18 million people and irrigation of over 2.5 million acres of crop land both inside and outside the basin. Salinity - a measure of total dissolved solids... threatens all these uses. Salinity in the Colorado River ranges from 50 milligrams per liter (mg/L) at its headwaters to approximately 600 mg/L by the time it reaches Imperial Dam.

[8] Ibid., page 68.

Response

114-6 The estimate of 2,000 tons per year is based on an annual fluctuation in surface area of Cumulic-Cryaquolls of about 200 acres at about 10 tons per acre, a very high figure. For comparison, the U. S. Bureau of Reclamation estimates salt loading for newly irrigated soils at 2 tons per acre. Salt loading and increase in TDS are discussed in Section 4.4.3.5 SDEIS. The annual average net evaporation loss from the proposed Muddy Creek reservoir is estimated to be 2010 acre-feet for the East Slope demand and 1910 acre-feet for the West Slope demand. These quantities represent volumes of water escaping the reservoir surface that will affect TDS concentration only and should not be confused with the net water loss attributable to the project.

Average annual inflow to the proposed reservoir is 68,100 acre-feet. Consequently, lake evaporation would result in an increase of the TDS concentration in Muddy Creek by about 3.0 percent for the East Slope demand and by 2.8 percent for the West Slope demand.

114-7 This is the estimated increase in salinity at Imperial Dam as derived by calculations identical to those you reference. It is directly related to use of water made possible by construction of the proposed reservoir.

114-8 See Responses to Comments 114-6 and 114-7.

Comment Letter 114

The Bureau of Reclamation estimates that by the year 2010, salinity could reach 963 mg/L at Imperial Dam.

The BLM's role in reducing salinity contributions from public lands is the implementation of the land management practices. The BLM will control salinity on public lands through techniques that are cost effective and provide multiple resource benefits, including salinity control." page 1, Salinity Control on BLM Administered Public Lands in the Colorado River Basin.

114-9 What are the site specific state standards for water quality for a reservoir in regards to the T.D.S. of the inflow water at the upstream beginning of a reservoir and the T.D.S. difference measured in the stream below the dam?

What are these T.D.S. amounts and where are these differences enumerated in this S.D.E.I.S.?

Water quality should be the same or higher below Rock/Muddy Creek Reservoir than the quality of water released from Green Mountain Reservoir. The T.D.S. and specific conductance should be equal to or lower than the Green Mountain release in order not to increase the cumulative T.D.S. at Imperial Dam.

e.) ECONOMIC IMPACT

The preferred Muddy Creek Reservoir is a beginning piece of the proposed Two Forks Project. Large diversions will be coupled with new reservoirs. Two major causes of downstream water degradation in the Colorado River.

114-10

1. The $252,000,000.00 Grand Valley Unit Stage II is a part of the proposed Salinity Control Program approved by Congress and implemented under the joint jurisdiction of the DOI Bureau of Reclamation, SCS, and ASCS of the Department of Agriculture and the EPA. Irrigators in the Grand Valley Mesa County are increasing their efforts to reduce salt loading to the Colorado River.
2. Proposed dams will increase salt loading due to (a) leaching of salts from poor reservoir sites and (b) increasing salt concentrations in the Colorado River by large scale water diversions out of the Colorado basin made possible quantity wise by these new augmentations dams.
3. Salinity throughout the Colorado River basin will increase as flows lessen. More T.D.S. at diversion points along the river has the potential to limit the variety of agriculture cropping. Municipal water providers will be faced with increased costs as the water requires more extensive treatment to meet the quality standards required by the state health department.

CONCLUSIONS

1. We must consider the Colorado River and its tributaries as an integrated system being pushed into a detrimental regimen by many demands.
2. The Colorado River system is a critical supply of water for many people, many purposes, and many projects in seven states.

Response

114-9 There are no State water quality standards for salinity, but the Colorado River Water Quality Improvement Program (PL 93-320) does recognize salinity control as a basin-wide objective.

Dams are not considered a point source of salinity. The issues of salt loading from Muddy Creek Reservoir and potential downstream salinity impacts are evaluated in Section 4.4.3.5 SDEIS. As disclosed, there will be a change in salinity, but it will be very small. The Colorado River Salinity Control Program was established to permit development to continue in the basin without impacting lower basin water users or requiring project-specific mitigation. See "1987 Review - Water Quality Standards for Salinity - Colorado River System" prepared by Colorado River Basin Salinity Control Forum. This report contains the implementation plan for the salinity control program, and was adopted by each of the 7 basin states as the requirement for triannial review of water quality standards for compliance with Section 303 of the Clean Water Act of 1977.

114-10 The relationship of the proposed project to the proposed Two Forks Reservoir is discussed in Section 1.2.3.2 SDEIS. See Response to Comments 114-5, 114-6, and 114-9.

Comment Letter 114

3. The Colorado River system must not be forced into carrying increased salt loads in decreased volume and increased salt concentrations as a result of poorly chosen sites for dams being created to expedite the export of non-saline waters to foreign river basins.
4. The new specific beneficial use of Dillon, Green Mountain and similar reservoirs' yields will be as a quality correction release in addition to a quantity release in order to maintain in-stream standards and flows.
5. A new round of reservoir site selections for augmentation water storage in connection with Metro Denver water leases is commencing. We encourage the federal agencies to permit reservoir sites that will produce the best quality water.

Thank you very much for this opportunity to respond to your well crafted and improved S.D.E.I.S. Rock Creek/Muddy Creek.

Yours truly,

Ruth P. Hutchins

Ruth P. Hutchins
Secretary

Response

Comment Letter 115

NCWCD MUNICIPAL SUBDISTRICT
NORTHERN COLORADO WATER CONSERVANCY DISTRICT

November 23, 1988

Mr. Cary Cargill, Regional Forester
Rocky Mountain Region
USDA Forest Service
11177 West 8th Avenue
Lakewood, Colorado 80225

Mr. Neil Morck, State Director
Bureau of Land Management
Colorado State Office
2850 Youngfield
Lakewood, Colorado 80215

RE: Rock Creek/Muddy Creek Reservoir Supplemental Draft Environmental Impact Statement

Gentlemen:

115·1 On behalf of the Municipal Subdistrict of the Northern Colorado Water Conservancy District, we wish to underscore the oral testimony delivered by our counsel at the Draft Environmental Impact Statement Hearing held at the Denver Botanical Gardens on October 3, 1988. The Municipal Subdistrict and District Board of Directors whole-heartedly support and endorse issuance of the Final Environmental Impact Statement and all necessary permits, licenses, and approvals for the Muddy Creek Reservoir Project to be constructed by the Colorado River Water Conservation District.

We are convinced that construction and operation of the Muddy Creek Reservoir Project is in the public interest and will meet all reasonable and legitimate environmental concerns.

Sincerely,

Darell D. Zimbelman, P.E.
Associate General Manager

Board of Directors, Colorado River Water Conservation District
Rolly Fischer, Manager, Colorado River Water Conservation District
Board of Directors, Municipal Subdistrict, NCWCD

Response

115·1 Thank you for your comment.

Comment Letter 116

SUMMIT COUNTY
BOARD OF COUNTY COMMISSIONERS

10 October 1988

Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40; Suite 20
Steamboat Springs, CO 80487

Dear Mr. Schmidt:

116·1 The County Commissioners of Summit County have reviewed the S.D.E.I.S. for the Rock Creek/Muddy Creek Reservoirs and we support the Muddy Creek Project. Muddy Creek is clearly less environmentally damaging and additional storage is needed by the Colorado River District to meet the terms of its lease agreement with Denver.

Yours Sincerely,

BOARD OF COUNTY COMMISSIONERS
SUMMIT COUNTY, COLORADO

Rich Levenwood, Chairman

Dan Ulmer

Don Peterson

Response

116·1 Thank you for your comment.

Comment Letter 117

Colorado-Ute Electric Association, Inc.

P.O. Box 1149
Montrose, Colorado 81402
(303) 249-4501

November 25, 1988

Mr. Jerry Schmidt, Forest Supervisor
Routt National Forest
29587 West U. S. 40, Suite 20
Steamboat Springs, Colorado 80487

Mr. David Atkins, Area Manager
Bureau of Land Management
Kremmling Resource Area
1116 Park Avenue
Kremmling, Colorado 80459

Gentlemen:

SDEIS
Proposed Rock Creek/Muddy Creek Reservoirs

Colorado-Ute Electric Association, Inc. (Colorado-Ute) hereby submits its comments on the SDEIS, dated August 1988 for the proposed Rock Creek/Muddy Creek Reservoirs.

Colorado-Ute is a generation and transmission electric cooperative which serves 14 distribution electric cooperatives, who in turn serve about 200,000 customers (or a population of about 600,000) in 49 of the 63 counties of Colorado. In the course of its business, Colorado-Ute has acquired a number of water rights, both absolute and conditional, for use in existing and potential future electric generating stations.

Colorado-Ute's interest in this SDEIS is due to its ownership of several flow and storage rights on Muddy Creek, above the proposed Muddy Creek Reservoir. Colorado-Ute owns the following rights:

	Amount	Adjudication Date
1. Rabbit Ears Reservoir	81,594 a.f.	09-05-84
2. Four Counties Ditch No. 3	85 cfs.	09-05-84
3. Barber Basin Reservoir	38,809 a.f. + 100 cfs.	03-14-79

117-1 Colorado-Ute is supportive of the construction of mitigation reservoirs such as Muddy Creek Reservoir. However, Colorado-Ute has not been able to determine from the SDEIS whether Colorado-Ute's water rights or other upstream water rights were fully considered in the calculation of the yield estimates for Muddy Creek Reservoir. If the yield estimate did not fully consider the effect of senior water right development, the actual yield could be less than that necessary to provide the expected mitigation.

Very truly yours,

Mary Chapman

Mary M. Chapman
Manager, Fuel and Water Resources

MMC/ase

cc: J. R. McNeill
K. E. Norris
K. E. Davenport

Response

117-1 As with any water resources project, the likelihood of conditional rights being developed upstream or downstream from the proposed project was considered in the analysis of potential yield from the proposed Muddy Creek Reservoir at Site C. The proponent's evaluation of the conditional rights referenced in your letter was that there was little likelihood of their being perfected in a manner that would significantly impact the yield of the proposed project. Therefore, they were not considered in the yield analysis for the proposed project.

Comment Letter 117

Response

Comment Letter 118

NATURAL ENERGY RESOURCES COMPANY

October 7, 1988

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 West U.S. 40 - Suite 20
Steamboat Springs, CO. 80487

Mr. Dave Atkins, Resource Area Manager
Kremmling Resource Area
P.O. Box 68
Kremmling, CO. 80459

Subject: COMMENTS ON ROCK CREEK/MUDDY CREEK SDEIS

Gentlemen:

118-1 Subject EIS is fatally flawed because it ignores better water sources for Metro Denver. It also would allow the destructive dewatering of the same Upper Colorado main stem tributaries that have already been hard hit by nineteen diversion projects to the East Slope.

118-2 The original purpose of subject project was to provide West Slope mitigation for the diversion of Windy Gap water to the East Slope. However, through circuitous reasoning the project is now being used to facilitate and justify diversion of even more water to Metro Denver from the wrong basin.

118-3 Before any additional diversions are contemplated from the severely depleted Upper Colorado tributaries, Colorado water supply EIS efforts should first address all reasonable options for meeting the state's future growth requirements. For example, city - farm recycling of water already being diverted is a common practice, but was not considered in this EIS. The vast untapped surplus waters of the Gunnison were also not considered. Recent engineering studies show both of these sources to be potentially more cost effective and less damaging to the environment than the cumulative impact of only diverting from a single basin.

118-4 If the Upper Colorado area needs a compensatory water supply and recreation reservoir as mitigation for the Windy Gap project, it should look only to that project for the funds to construct the project. It surely should not create another Upper Colorado diversion which will also require additional mitigation for the further depletion of the area's water. The EIS should consider the Upper Colorado's basin-wide impact of each new diversion proposal compared to the impact if water were to come from the virgin, but wetter, Upper Gunnison Basin.

Response

118-1 The relationship between the proposed project and the Metro Denver water supply is discussed in Section 1.2.3.2 SDEIS. The purpose of the proposed project is mitigation for the Windy Gap project which has been constructed (See Section 1.2.2 SDEIS), and the purpose for the proposed action is distinct from the need for the water to be provided by the proposed storage reservoir. This project would provide a portion of the interim water supply needed by the Metro Denver Area beginning in about 1998 as projected by the Corps of Engineers. This constitutes the interim or short-term need for the project.

The 15 West Slope counties represented by the River District and the upper Colorado River Basin, in general, would benefit from the proposed project (See Section 1.2.2 SDEIS). As a result of the short-term need for water from the proposed reservoir and the River District - Denver Water Board lease, the project would generate the means to support the District's statutory obligations and present and future water needs in western Colorado (See Section 1.2.3.1 SDEIS). The project would also permit operational enhancement of the upper Colorado River water storage and delivery system (See Section 1.2.3.4 SDEIS).

118-2 The relationship between this project and mitigation for Windy Gap is presented in detail in Section 1.3 SDEIS. See also Response to Comment 118-1.

118-3 A variety of structural and non-structural alternatives to the proposed project were considered (See Section 2.2 SDEIS). City-farm recycling of water would not meet the purpose of the proposed project. The projects referenced in this comment are not viable near-term alternatives to meet the short term need in the mid-1990's (See Section 1.2.3.2) nor would they meet the applicant's purpose for the proposed project (See Section 1.2.2).

118-4 See Response to Comments 118-1 and 118-3.

Comment Letter 118

The Denver Water Department apparently only knows the Upper Colorado, and they are determined to keep taking water from this same source. The Colorado River Water Conservation District needs water projects to justify their existence, and they have lost their historic federal source of funds from the Bureau of Reclamation. Since DWD is now their only perceived source of funds, the River District has decided to compromise their West Slope's long term interests to accommodate DWD's targeting of a single basin. The Gunnison has always been within the River District's domain, and they have finally agreed to a Colorado Water and Power Authority study of this basin for East Slope growth.

This discovery of the Gunnison's vast untapped waters is encouraging, but the River District should now withhold action on any further dewatering of the Upper Colorado tributaries until the Gunnison alternatives are thoroughly considered.

118-5 Engineering studies show that a large, high altitude Gunnison reservoir at Union Park can enhance Colorado's four major river environments during droughts while meeting most of the water needs of both slopes for the next 30 to 50 years. This is the type of balanced natural resource development that is the objective of all reasonable environmental and business interests.

The National Environmental Policy Act was specifically enacted to force consideration of all reasonable options when making major development decisions that may substantially impact the environment. The responsible permitting agencies have no other choice but to strictly adhere to this Congressional mandate.

Very truly yours,

Allen D. Miller

Allen D. (Dave) Miller
President

ADM/bm

cc: Governor Roy Romer
Colonel Steven West, USA Corps of Engineers
Mr. James J. Scherer, Regional Director, EPA
Mr. Gary E. Cargill, Regional Forester, USFS

Response

118-5 See Response to Comment 118-3.

Comment Letter 119

Trans Mountain Hydro Corp.
123 S. Paradise Road
Golden, Colorado 80401
Office 526-9296

October 31, 1988

Mr. Dave Atkins, Resource Area Manager
Bureau of Land Management
Kremmling Resource Area
P.O. Box 68
Kremmling, CO 80459

RE: Rock Creek/Muddy Creek SDEIS

Dear Mr. Atkins,

Trans Mountain Hydro Corp. is the owner and operator of two small hydroelectric projects located between Green Mountain Reservoir and the Colorado River on the Blue River. These two projects, the Blue Valley Ranch Hydro Power Project, and the Blue Valley Ranch Hydro Power Project, Unit #2, are licensed by the Federal Energy Regulatory Commission (FERC), and have FERC Project numbers 4316, and 4444 respectively. Project 4316 is currently on-line and has been operating since 1983, and Project 4444 is currently under construction.

I have reviewed the August 1988 SDEIS for the Rock Creek/Muddy Creek Reservoir. Trans Mountain Hydro Corp. wanted to present the following concerns to the Bureau of Land Management and make them part of the public record for this project.

119-1 Trans Mountain Hydro has two water rights for the generation of hydroelectric power, with appropriation dates of March 1981. Project #4316 has an absolute right for 206 cfs, and project #4444 has a conditional right for 450 cfs. Review of the information shows a significant reduction in flow between Green Mountain Reservoir and the confluence of the Blue and Colorado Rivers when either proposed reservoir is used in conjunction with Green Mountain Reservoir under the proposed River District-Denver Water Board Lease arrangement. A similar reduction in flow would probably take place under any exchange scenario using Green Mountain and/or Williams Fork Reservoir.

This reduction in flow will reduce the amount of energy produced by these projects, which will significantly affect the economics of these two projects. It will also have a significant affect on the two senior water rights owned by Trans Mountain Hydro Corp. Therefore, Trans Mountain Hydro Corp. will oppose any exchanges such as those proposed with Green Mountain and/or Williams Fork which will serve to reduce the flow of the Blue River between Green Mountain and the

Response

119-1 Trans Mountain Hydro Corp could be impacted by proposed reservoir operations. Reduction in flows on the Blue River below Green Mountain Reservoir could reduce the ability to generate power. However, the FERC licensing document for the project(s) recognizes that the project is downstream from Green Mountain Reservoir and is subject to fluctuating water releases for which neither the Department of the Interior nor the Bureau of Reclamation would be responsible. Trans Mountain Hydro Corp has a direct flow right but no rights to the waters stored by the United States in Green Mountain Reservoir. In addition, Trans Mountain Hydro does not have any headwater benefit arrangement with the Bureau of Reclamation and is not compensating the United States for any such headwater benefits it might be realizing in the operation of its Blue River projects. The substitution contemplated by the applicant is a substitution of stored water in Muddy Creek Reservoir for stored water in Green Mountain Reservoir. (See also Response to Comment 103-2).

The actual legal effect of the Muddy Creek project on Trans Mountain Hydro depends on the outcome of legal decisions yet to be made and which are outside the scope of the NEPA process. Based on quantitative analysis (available through the BLM Kremmling Resource Area office), no matter what the outcome of possible litigation, neither the ability to substitute water under the proposed substitution agreement or the operation of Trans Mountain Hydro Corp's existing or proposed facilities would be impacted significantly.

Comment Letter 119

confluence of the Blue and Colorado Rivers.

I appreciate the opportunity to make these comments.

Sincerely,

Herbert C. Young
President, Trans Mountain Hydro Corp.

Response

Comment Letter 120

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
12078 GRANT STREET P.O. BOX 33695 DENVER, COLORADO 80233 (303) 452-6111

November 7, 1988

Mr. David Atkins, Area Manager
Bureau of Land Management
Kremmling Resource Area
Box 68
Kremmling, CO 80459

SUBJECT: COMMENTS ON ROCK CREEK/MUDDY CREEK RESERVOIR:
Draft Supplemental Environmental Impact Statement

Dear Mr. Atkins,

Tri-State is affected by the preferred proposal at Muddy Creek since it involves the relocation of approximately 3500 feet of our 230 kV transmission line. Therefore, we offer the following points to incorporate into your future planning efforts:

120·1 • Tri-State assumes that the project proponent will pay for the necessary transmission line relocation. Obviously, we will need adequate lead time to engineer and construct the relocated line portion.

120·2 • Tri-State has no problem with the relocated line conceptually portrayed in the document, however, we must have input into final siting to allow for transmission reliability and maintenance access considerations.

120·3 • Tri-State assumes that the relocation in the document implies a commitment for any new right-of-way that may be needed on federal lands.

Thank you for the opportunity to provide comments and for keeping us informed of the progress of this proposal.

Sincerely,

Karl W. Myers
Senior Environmental Planner

KWM/158

cc: Virgil Schafer
Art Mander
Don Shanfelt

Response

120·1 If the Muddy Creek project is approved, the project proponent would pay for the transmission line relocation discussed in Section 2.5.2. The cost estimate presented in Table 2.6.2 includes these costs. Adequate lead time would be provided to engineer and construct the relocated line.

120·2 If the Muddy Creek project is permitted, direct coordination between the project proponent, proponent's engineer, the BLM and Tri State will be established. It is expected and anticipated that Tri State will be directly involved in final siting of the relocation.

120·3 The FEIS analyzes the power line relocation and will facilitate the relocation across federal lands. The owner of the power line, i.e. Tri State, will need to apply for relocation.

ATTORNEYS and INDIVIDUALS
Comment Letter 121

KIRKLAND & ELLIS
A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

Chicago Office
200 East Randolph Drive
Chicago, Illinois 60601
Telex 25-4381
312 861-2000

999 Broadway
Denver, Colorado 80202
303 291-3000

Washington Office
655 Fifteenth Street, N.W.
Washington, D.C. 20005
202 879-5000

To Call Writer Direct:
303 291-3009

November 23, 1988

VIA FEDERAL EXPRESS

Jerry E. Schmidt
Forest Supervisor
Routt National Forest
29587 West U.S. 40, Suite 20
Steamboat Springs, CO 80487

Re: Supplemental Draft Environmental Impact Statement - Rock Creek/Muddy Creek Reservoir

Dear Mr. Schmidt:

This letter sets forth a number of comments of the Daniel L. Ritchie Corporation on the August, 1988 Supplemental Draft Environmental Impact Statement ("DEIS") for the Rock Creek/Muddy Creek Reservoir. We appreciate the opportunity to review and comment on the DEIS for this important project.

121·1 1. The summary of the DEIS, at page ii, states that: "As a consequence of the proposed action, the Secretary of the Interior (through the Bureau of Reclamation) would be required to execute an agreement which would provide for water exchanges between a proposed new reservoir and Green Mountain Reservoir." The United States has not acknowledged any obligation to allow exchanges between Green Mountain and any proposed new reservoir. Although Denver has requested approval from the federal district court in Case Nos. 2782, 5016, and 5017, and from the Water Judge in Water Division No. 5, Case Nos. 87CW105, et seq., the United States, together with a number of other parties, has opposed these applications. Whether the Secretary of the Interior is obliged to permit such exchanges is a question for judicial resolution and/or Congressional action, and should not be assumed in the DEIS.

Response

121·1 See Response to Comment 103-2.

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2. The criteria for evaluation of alternatives are derived from the Azure-Windy Gap settlement, with no analysis by the Forest Service or BLM as to whether these criteria are reasonable, achievable, or desirable from the standpoint of federal policy. Two principal objectives of the proposed action which should guide the selection of alternatives are providing a short-term supplemental water supply to the Denver metropolitan area and a long-term supply to meet western slope needs. Neither of these objectives need be limited by the Azure-Windy Gap settlement. As discussed at length in the Metropolitan Denver Systemwide EIS, a wide range of alternatives exists for providing an interim water supply to the front range. Many alternatives to the immediate construction of the Rock Creek/Muddy Creek Reservoir are available to provide a long-range water supply to the west slope.

121·2

3. Specifically, the alternatives selected for detailed study do not include the possibility of constructing a number of smaller dams in various locations to accomplish the River District's objectives. We note that the River District has conditional decrees for a large number of water storage and direct flow projects (see, e.g., the District's application in Case No. 88CW85, Water Division No. 5). The DEIS does not explain why the District's water supply objectives must be met from a single, large reservoir, an assumption which severely restricts the range of alternate sites which can be considered.

121·3

4. Insufficient attention is also provided to the consequences of the no action alternative. Although the DEIS states that the River District would have to initiate a "variety of legal and institutional proceedings" relative to the Windy Gap project, the viability and consequences of those alternate proceedings are not explored.

121·4

5. The DEIS assumes that the 1985 Supplemental Azure-Windy Gap settlement agreement is valid and enforceable and somehow defines the obligations of the United States. The DEIS makes no mention of the fact that this supplemental agreement has been challenged in Case No. 85CW135, Water Division No. 5, a case which is presently on appeal to the Colorado Supreme Court, Case No. 88SA321.

121·5

Response

121·2 The purpose of the proposed project is to mitigate the impacts of the Windy Gap project which has been constructed (See Section 1.2.2 SDEIS). The relationship between the proposed project and the Metropolitan Denver Systems EIS is discussed in Section 1.2.3.2, SDEIS. This constitutes the short-term need for the project, as distinct from the purpose.

The screening criteria for alternatives consider not only the complex and lengthy legal actions and negotiations which establish the purpose of the proposed project, but also the resources available to the proponent to implement the proposed action. The alternative selection process has not been limited by the Azure-Windy Gap Agreement, but it must be recognized that the Azure-Windy Gap Agreement and Supplemental Agreement which provide the financial basis for the proposed project also restrict the range of options for which these funds can be used.

The range of alternatives evaluated in the SDEIS includes all reasonable alternatives regardless of jurisdiction as required by NEPA and the screening criteria insure that the alternatives studied in detail are in consonance with the purpose and need for the proposed project.

121·3 The alternative evaluation process included consideration of the enlargement of a number of existing smaller reservoirs. An evaluation by Morrison-Knudsen Engineers, Inc. (1986) indicated that this alternative would not provide sufficient storage at a reasonable cost (See Section 2.2.2.1 SDEIS). Various other storage projects for which the proponent holds conditional rights were considered but eliminated from detailed evaluation for the reasons cited in Section 2.2.2 SDEIS.

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Response

121·4 The No Action alternative is introduced in Section 2.3 SDEIS and discussed in more detail in Section 4.2. As noted, a no-action condition would terminate the involvement of the Forest Service and Bureau of Land Management in this application for a Special Use Permit or Right-of-Way; but the Colorado River Water Conservation District and other West Slope and East Slope entities could not terminate efforts to find a means of adequately mitigating the potential harm to present and prospective water users within the Colorado River basin in Colorado as a result of the Windy Gap Project (see Section 1.3.1).

Consequently, under this alternative changes to the existing environment of the region would continue as in the recent past until such time as the water management agencies involved could complete a variety of legal and institutional proceedings related to the adjudication and negotiations outlined in Chapter 1.0 SDEIS. These proceedings would involve additional adjudication under the Azure-Windy Gap Supplement Agreement of March 29, 1985 (Section 1.3.5). Any attempt to predict the outcome of these proceedings and assess the environmental impacts that might result would, at this time, be purely speculative.

121·5 For the record, aspects of the Azure-Windy Gap Settlement Agreement involving notice provisions have been appealed to the Colorado Supreme Court (88SA321) and have subsequently been withdrawn.

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6. In a similar vein is the assumption made in the DEIS of the validity of the River District's lease agreement with Denver. This agreement is also being challenged in Case No. 87CW172, Garfield County District Court. The River District's water rights applications for the Gunsight Pass Reservoir, Case Nos. 87CW283 and 87CW284, have also been opposed, in part on the basis that the District has not appropriated, or may not appropriate, water for use by Denver. Much of the analysis in the DEIS is, therefore, based on a proposed water use which may be disallowed.

121·6

7. Furthermore, the DEIS evaluates the effects of proposed reservoir operations on the basis of the constraints imposed by the River District-Denver lease agreement. This agreement does not bind the United States or foreclose the Forest Service and the BLM from considering alternative reservoir operations (and reservoir sizes) which might have fewer adverse environmental consequences.

121·7

8. The DEIS does not discuss the risk that the viability of this project would be destroyed by the development of senior conditional water rights on Muddy Creek. In addition to the DeBerard Reservoir, which is discussed as a potential alternative to this project, a number of senior decreed water rights are held by the Daniel L. Ritchie Corporation, Colorado-Ute Electric Association, and others. Not only would the development of such projects eliminate the reliable yield of the Muddy Creek Reservoir, but the cumulative environmental effect of an additional major project on Muddy Creek would be considerable.

121·8

9. Conversely, the DEIS does not discuss the possibility that approval and construction of the Muddy Creek Reservoir would foreclose opportunities for the development of additional projects in the Muddy Creek drainage, even projects with senior conditional water rights. The United States may well decide to deny special use permits for future projects precisely because of their cumulative effect on the environment and/or the prior economic investment in the River District's Muddy Creek Reservoir. This is a potential irretrievable commitment of resources, and a severe external economic effect on third parties, which should be addressed.

121·9

Response

121·6 The status of actions on the River District - Denver Water Board Lease is summarized in Section 1.3.7 SDEIS. Following publication of the SDEIS, the District Court confirmed the River-Denver Lease. The water rights application is currently pending in water court.

121·7 The USFS and BLM have not been bound by the constraints imposed by the River District - Denver Lease. The lease is viewed as establishing the short-term need for the proposed project as distinct from the purpose of the project (See Response to Comment 118-1). In the preparation of the DEIS and SDEIS a variety of operational scenarios and project alternatives were considered and evaluated. Some were eliminated from detailed study, others were evaluated in detail as reported in Chapters 2.0 and 4.0 of both the DEIS and SDEIS. This evaluation considered alternative reservoir sizes and alternative reservoir operations.

121·8 It is standard procedure in analyzing a proposed water development project to consider senior conditional rights on the stream above and below the proposed project. It is also accepted procedure to evaluate the likelihood of development of those rights and consider only those rights with a significant potential of being perfected in the analysis of a proposed project. In this case, the assessment indicated little potential for perfecting other rights on Muddy Creek above Site C in a manner that would significantly impact the yield of the proposed reservoir. The possibility of development of a larger Muddy Creek project below the proposed site is evaluated in Section 2.2.2.3 SDEIS. As noted, the proposed project at Site C would not necessarily preclude construction of a larger project downstream at Site A or A' at a later date.

121·9 See Response to Comment 121-8. Approval and construction of the proposed project on Muddy Creek does not necessarily foreclose opportunities for additional projects on Muddy Creek. If a request for right-of-way or special use permit were received for another project on Muddy Creek, its purpose, need, and impacts would be evaluated considering the conditions and foreseeable cumulative effects at the time.

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10. At page 2-35, the DEIS states that one purpose of the Muddy Creek Reservoir would be to provide for 2,000 acre-feet of water supply for the Middle Park Water Conservancy District. However, the DEIS does not evaluate the River District's ability to supply this use, given the District's obligations to Denver under the lease agreement. All water use on the west slope, including that "guaranteed" to Middle Park, is subordinate to Denver's entitlement under the lease.

121·10

11. At page 2-36, the DEIS discusses the prospects of providing a 100 c.f.s. and 150 c.f.s. minimum streamflow in Muddy Creek and the Colorado River. The River District's applications for conditional water rights for the Gunsight Pass (Muddy Creek) Reservoir in Case Nos. 87CW283 and 87CW284 do not request approval of water use for this purpose.

121·11

12. The DEIS does not quantify the future water demand for the oil shale industry, other than to assume a uniform 930 acre-foot demand over ten months of the year. How much of this demand can be met from the water rights held by the oil shale developers? When, exactly, will these rights be out of priority, and what will be the extent of their augmentation requirements?

121·12

13. The DEIS states at page 2-35 that all private land within a 1,600-acre area should be acquired "to ensure equitable treatment of the landowners." Without more information as to which land is intended for acquisition, and for what specific purpose, the Corporation cannot evaluate this proposal.

121·13

14. Similarly, without knowing the nature, extent, and location of "potential concessionaire opportunities," the Corporation cannot agree that the power of eminent domain may properly be used to acquire land for this purpose. These activities could very well occur on land which remains in private ownership.

121·14

15. The effects on private landowners which are discussed in the DEIS are limited to loss of grazing capacity. A number of other serious economic consequences of the proposed reservoir are given no consideration whatsoever. For example:

121·15

Response

121·10 Supplying this use is included in the baseline hydrology (see Section 2.4.7.1 SDEIS). A 60,000 acre-foot reservoir on Muddy Creek has sufficient yield to supply both the 2000 acre feet for Middle Park and the requirements of the Denver lease.

121·11 Court approval of operational releases was not intended nor, in the view of the applicant, necessary.

121·12 Assumptions concerning a future oil shale demand deal with conditions too far in the future for detailed quantification and analysis. The West Slope demand presented in Section 2.4.7.3 SDEIS is considered reasonable and sufficiently detailed for comparison of potential impacts of alternatives.

121·13 The area that would be inundated by a 60,000 acre-foot reservoir at Muddy Creek Site C is shown on Figure 2.3.1 SDEIS. The boundary would be generally around the reservoir perimeter about 200 feet outside of the 7500 foot elevation contour. However, an attempt would be made to acquire any small, isolated parcels that would be undesirable from both a landowners and reservoir operators point of view.

121·14 Private concessionaires would not be used at Muddy Creek. (See Chapter 2.0 FEIS). It is anticipated that the Colorado Division of Parks and Outdoor Recreation would manage the campground and other reservoir facilities.

121·15 We appreciate your comment. It is anticipated that the purchase price of the land would include all costs associated with the transfer of water rights.

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121-15 e) The inundation of irrigated meadows, or the acquisition of such meadows by the River District for other purposes, will prevent the private owner of that land from using existing water rights at their historic place of use. Water court applications will be required to allow changes in the points of diversion and places of use to other lands. This is an expensive and time-consuming process which may result in severe limitations on the use of water rights which the owner presently enjoys.

121-16 b) The DEIS contains no discussion of the effect on a landowner's overall ranching operation of the acquisition of important meadows, pasture, calving grounds, access routes, dwellings, and other facilities. Each ranch requires a particular balance between the number and type of livestock, the amount and location of irrigated meadow, pasture, and calving areas, and the number and experience of employees. It is likely that loss of land required for the Reservoir will destroy this existing balance, causing economic losses far beyond the per-acre value of the land taken.

121-17 c) Other consequential damages to the landowners' operations have not been considered, such as the increased potential for trespass; livestock losses due to theft, automobiles, and open gates; damage to crops and haystacks; poaching of fish and wildlife; noise disturbance to livestock during breeding and calving, etc. The construction of and permanent recreation activity in and around the Muddy Creek Reservoir will cause very real economic losses to surrounding landowners which should be considered.

121-18 d) The DEIS does not discuss the impact on the private landowners' existing opportunities for hunting, and revenues derived from licensing hunters on private land, which will result from the disrupted summer and winter range and migration routes of deer and elk.

121-19 e) These and other consequences of reservoir construction on surrounding landowners should be addressed in the EIS. The statement that the purchase of private lands will fully mitigate all economic losses to the landowner is a gross oversimplification.

Response

121-16 We appreciate your comment. Based on the EIS team's knowledge of the area and the ranching situations, as well as the general economic state of western cattle ranching, it was assumed that the purchase of land at a fair market value would compensate for losses to the ranching operation. The River District will be very cognizant of these concerns when lands are purchased to provide for the reservoir.

121-17 We disagree that these damages would in fact occur with the Muddy Creek Alternative. The campground will be separated from private land by Highway 40 and movement around the reservoir will be restricted to walking. Because of the location of the campground, it is doubtful recreators will damage private lands or cause economic losses to local ranchers.

121-18 As discussed in the Recreation section for Muddy Creek, no disruption of big game animals that would effect hunting would occur. Private landowners would still be able to gain revenues from hunters on private land. In fact the reservoir may make this form of income even more viable for surrounding landowners.

121-19 As discussed in Responses 121-16 through 121-18, we question whether economic losses would occur as you suggest.

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121-20 16. Moreover, the DEIS omits any discussion of the consequential economic loss which will result to the community from the conversion of over 1,300 acres of ranching land, and almost 1,000 acres of wildlife habitat and wetland, to a reservoir. Not only does this land support a significant number of families employed in the ranching business, but the direct economic benefit to Grand County from the purchase of feed, supplies, equipment, hunting and fishing licenses, groceries, restaurant meals, motel rooms, gasoline, and the like must be factored into the cost-benefit analysis. It is largely because of these economic benefits that farm and ranch land such as this is considered to be of "state and local importance." While the new recreational use of the reservoir site may generate a different kind of economic benefit, it must be offset by the existing revenues to the community which will be lost.

121-21 17. At page 3-38, the DEIS says that the application of the Forest Service Chapter 30 procedure to Muddy Creek is not "required." While this may be true in some other contexts, the BLM may consider requiring the maintenance of minimum streamflows below the Reservoir for the protection of stream channel stability as a condition of the River District's permit.

121-22 18. Without more information on the land which will be acquired for construction of the Reservoir and mitigation of environmental impacts, we cannot evaluate the statement at page 4-165 of the DEIS that no problems would be created in substituting base property required for existing Forest Service or BLM grazing allotments, or that the loss of AUMs from federal allotments would not be significant.

121-23 19. The DEIS discusses the need for acquisition of a large amount of private land to replace lost wetland and wildlife habitat. The specific land to be acquired is not identified in the DEIS, and there is insufficient discussion of the effect on private landowners of lost grazing capacity, loss of use of water rights, change in the balance of overall ranching operations, etc.

Response

121-20 Again, we question the amount of economic benefits that would be lost by the reservoir. The recreational benefits of the reservoir would far outweigh the relatively small losses that would occur to ranching, especially when the purchase of private land is included.

121-21 While the BLM did not require an application of the Forest Service Chapter 30 procedure to Muddy Creek, a channel stability analysis suitable to the hydrologic and hydraulic conditions of the stream was required. This analysis is presented in Section 4.4.3.2. It was concluded that channel stability conditions under post-project conditions would not be significantly different than under existing conditions. If anything, there is a potential for improved channel stability as a result of proposed mitigation measures such as removal of grazing and planting of vegetation in the riparian area (See Sections 5.3.4.1 and Muddy Creek mitigation plan). There are no Colorado Water Conservation Board instream flow requirements on Muddy Creek; however, the proponent has committed to a 13 cfs (or inflow) minimum stream flow below the proposed dam. This requirement will be included in the permit.

121-22 The affected ranchers all own other base property that is sufficient to maintain existing Forest Service or BLM grazing permits.

121-23 It is anticipated that the purchase of lands for use in mitigation would compensate landowners for the true value of those lands. The River District and BLM are working with the affected landowners so they are not adversely affected. For example, an irrigation diversion dam for one landowner would be repaired and therefore, would benefit the landowner on his remaining private land. The specific lands required for mitigation are identified in the FEIS (Chapter 3.0).

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121·24 20. Similarly, the DEIS discusses the need for range improvements on private land to increase its carrying capacity. Whether these improvements would be effected by cooperative agreements with the landowner, and the allocation or the cost of such improvements, is not discussed.

These comments on the DEIS are not intended to express the Corporation's opposition to the construction of a new reservoir on Rock Creek or Muddy Creek. Rather, we believe that a decision to build a reservoir of this magnitude should be made, if at all, only after disclosure to the public of all of the consequences of that decision and full consideration of those consequences by the Forest Service, BLM, and other state and federal agencies. Although we have highlighted several key deficiencies in the DEIS, this letter is not intended to be all-inclusive, and our omission of any issue does not indicate the Corporation's agreement with the evaluation or conclusions set forth in the DEIS.

We would be happy to address any of these concerns with you in more detail.

Very truly yours,

Charles B. White

cc: Daniel L. Ritchie

Response

121·24 The range improvements discussed were for replacing lost grazing land in BLM allotments, not private land.

Comment Letter 122

Glen A. Miller and Associates
Consulting Geohydrologists
(303) 245-9811
(home) (303) 245-4347

November 23, 1988

Mr. Jerry E. Schmidt, Forest Supervisor
Routt National Forest
29587 W. U.S. 40, Suite 20
Steamboat Springs, CO 80487

Re: Rock Creek/Muddy Creek Supplemental Draft Environmental Impact Statement

Dear Mr. Schmidt:

Thank you for the opportunity to comment on the EIS. My concerns about the effects of the proposed Muddy Creek site (the Preferred Alternative) are related to the diminished water quality that will occur downstream in Colorado, in contrast to no adverse effects or even a betterment in water quality if the Rock Creek Alternative were built. With Muddy Creek, the projected increase in total dissolved solids (TDS) in the Colorado River at Cameo during low flow conditions is 22 mg/L, which is comparable to that projected by the much larger "Two Forks" project. This underscores the dramatic effects of substituting 300-500 or higher mg/L TDS water from Muddy Creek Reservoir for diverted 50-100 mg/L water in Dillon-Green Mountain Reservoirs.

My concern and many local concerns center about the future needs of municipal/industrial water suppliers to obtain water directly from the main stem during periods of low flow. These are the very periods when project effects on water quality will be greatest.

122·1 I urge you to look carefully at the comparable water-quality effects, and to the cumulative effects of this and other projects on the Colorado River in Colorado and to deny permits for the Muddy Creek Reservoir. The inequities inherent in the combined Colorado River Salinity Control Program and headwaters diversions fall heavily on main stem users in the western part of Colorado. Building Rock Creek Reservoir instead of Muddy Creek will be a step in the direction of minimizing adverse effects of these inequities.

My specific comments on the EIS are as follows:

122·2 1. Page 4-129, par. 3: This repeats, erroneously, the statement in the original draft that claims ". . . no measurable changes in water quality in the Colorado River as a result of construction of Muddy Creek Reservoir." Yet, on page 4-129, the text notes a "potential problem" with salinity at the Muddy Creek site. Also, the analysis on page 4-130 and 4-131 recognizes and attempts to quantify increases in salinity caused by the Muddy Creek project.

743 Horizon Court • Suite 314, P.O. Box 60093 • Grand Junction, Colorado 81506

Response

122·1 Please see discussion of salinity concerns in Section 4.4.3.5 SDEIS.

122·2 We agree with your comment. The word "measurable" on p. 4-129, paragraph 3 should read "significant." This change is noted in the errata section of the FEIS.

Comment Letter 122

122·3

2. The table on page 4-130 is not consistent and is somewhat misleading. Is that the 63 mg/L (from Table 3.4.9) is used in the Rock Creek analysis, but only 300 mg/L (from where?) is used in the Muddy Creek analysis. Table 3.4.11 indicates 500 mg/L TDS inflow to Muddy Creek (not 300), which is analagous to the 63 mg/L TDS inflow to Rock Creek. Later the text uses "300 mg/L TDS as a "seasonal" average, without supporting information. However, this is not a realistic estimation of TDS under the worst-case conditions analyzed. The inflow to the reservoir under worst-case (dry period) conditions probably will be greater than 500 mg/L, not less, because of increased evaporation, increased percentage of base flow versus snowmelt in the reservoir, etc. Note that if in the Rock Creek analysis TDS were also reduced 2/5, the outflow would no doubt result in better quality water at Cameo than under either "no action" or certainly under the Muddy Creek alternative.

122·4

3. The references to the "Shoshone Agreement" and the lengthy discussions in Appendix E never mentions adverse effects on water quality at Cameo, although concern is raised in the text about effects of reduced low flows on other resources. Thus, the discussions and conclusions that the Shoshone Agreement/Project are not "functionally equivalent" may hold true for legal water rights purposes (P E-3), but no analysis was made of the effects on water quality at Cameo of the various scenarios that were considered. The lengthy analysis in Appendix E only supports the "no injury" clause in the Agreement insofar as flows are concerned. Water quality is never mentioned in the analysis. A cursory analysis of rare low-flow periods, when both DWB and downstream in-state users would tend to draw directly from the river, indicate that significant TDS increases will occur at Cameo under operation of the "Shoshone" Agreement.

In summary, I urge you to carefully consider the degradation of water quality that a reservoir on Muddy Creek will cause, in comparison to no change or perhaps an improvement if Rock Creek is built, and to deny permits for Muddy Creek.

Thank you again for the opportunity to comment.

Sincerely,

Glen A. Miller

Dup. copy: Dave Atkins, Resource Area Manager, BLM
P.O. Box 68
Kremmling, CO 80459

/csm

Response

122·3 The 300 mg/L TDS represents a "flow weighted" average which is the expected average concentration for water stored in the Muddy Creek Reservoir. Muddy Creek has very high seasonal variations in TDS and flow, with most of the flow occurring during April-June at fairly low TDS. The 500 mg/L TDS represents an arithmetic average for all samples, regardless of the flow. Water quality of water released from Muddy Creek during drought conditions is expected to be at a long term average, since water released would be water that had been stored in previous wet years. Water quality at Rock Creek does not exhibit wide seasonal variations, and thus an arithmetic average for Rock Creek is similar to a flow weighted average. The 300 mg/L TDS for Muddy Creek is a flow-weighted average which represents an expected average concentration in the reservoir. The 63 mg/L TDS at Rock Creek is essentially the same, either flow weighted or time weighted. Thus, the use of 300 mg/L for Muddy Creek and 63 mg/L for Rock Creek is comperable and correct.

122·4 The analysis of the Denver - Public Service Company Shoshone agreement was undertaken in response to comments from several federal agencies. The agreement was analyzed from a hydrologic point of view considering only the quantity of water available as a result of the agreement. An assessment of related water quality issues was not requested, nor was a detailed environmental impacts assessment attempted once it was determined that the agreement was not functionally equivalent to the proposed reservoirs. Your comment supports our analysis of the potential impacts of the Denver - Public Service Company agreement.

Comment Letter 123

123·1

Dear Sirs:

In regard to the proposed Muddy Reservoir if you keep my ranch from flooding, I will expect a settlement to pump water the same as the Bureau of Reclamation gave the ranches on the Colo. River, just south of Kremmling, when they stopped it from flooding with the Big Thompson Project.

The ranches are:
Ted Orr
Ted Eagles
McElroys
Earl Martins

Yours
William E. Rayner

William E. Rayner
P.O. Box 13
Kremmling
80459

Response

123·1 Under the mitigation plan the irrigation system for the lower one-half of the mitigation area will be rehabilitated to assure adequate irrigation capability. Rehabilitation includes reconstruction of the existing diversion structure and improvement and protection of the existing irrigation ditch. Thus, the ability to irrigate your lands will not be impacted. For details please see the final Mitigation Plan available at the BLM, Kremmling office.

Comment Letter A

Response

BUREAU OF LAND MANAGEMENT
UNITED STATES DEPARTMENT OF THE INTERIOR

UNITED STATES FOREST SERVICE
DEPARTMENT OF AGRICULTURE

COPY

REPORTER'S TRANSCRIPT OF
PROCEEDINGS AT PUBLIC HEARING
ROCK CREEK/MUDDY CREEK RESERVOIR SDEIS

October 3, 1988, 7:00 p.m.
Conference Room
Denver Botanic Gardens
909 York
Denver, Colorado

Reported by:
BEVERLEE BAUER MEDRICK
Certified Shorthand Reporter

Comment Letter A

Response

PANEL:

DAVID ATKINS
Area Manager
Kremmling Resource Area
Bureau of Land Management
P.O. Box 68
Kremmling, Colorado 80459

DAVE HARR
Muddy Creek Project Coordinator
Kremmling Resource Area
Bureau of Land Management
P.O. Box 68
Kremmling, Colorado 80459

RAY GEORGE
Project Coordinator
U.S. Forest Service
Yampa Ranger District

GRADY L. McNURE
Chief, Regulatory Unit 4
U.S. Army Corps of Engineers
764 Horizon Drive, Room 211
Grand Junction, Colorado 81506-8719

MAE A. MAEGELE
Environmental Specialist
Bureau of Reclamation
P.O. Box 449
Loveland, Colorado 80539

JON SCHERSCHLIGT
Water Quality Control Division
Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80206

HEARING CONDUCTED BY:

ROY JACKSON
Area Manager
Little Snake Resource Area
Bureau of Land Management
1280 Industrial Avenue
Craig, Colorado 81625

Comment Letter A

main reasons why the Forest Service and the BLM have prepared initially a Supplemental Draft EIS, the first being the additional data collected, analysis and studies prepared subsequent to issuing the draft which had a direct bearing on the selection of the preferred alternative.

The original draft EIS did not contain a preferred alternative which is required by regulation on all EIS's and which is now contained in the Supplemental Draft EIS.

Number three, the Colorado River Water Conservation District made formal application to the BLM for a right-of-way to construct and operate a reservoir on Muddy Creek that is larger than the one in the original draft EIS. Enlarging the reservoir will include an additional 247 acres of which 109 are BLM-administered land and 138 acres of private land.

Thank you.

MR. JACKSON: Are there any elected officials present that have not signed the sign-up sheet that would like to speak? All right, are there any elected officials present that have signed? Mr. Needham.

A-1 MR. NEEDHAM: Thank you very much. My name is Bill Needham. I'm chairman of the Board of Commissioners of Grand County. I am also vice-president of the Colorado River District Board, but I would like to speak tonight and I will speak tonight only as a Commissioner of Grand County.

Response

A-1 Thank you for your comment.

Comment Letter A

The proponent of the project obviously is the Colorado River District. I want to speak from the county's perspective. I realize under the circumstances it is hard probably in my position to separate the two. I will try to make that attempt.

To permit or not permit, apparently that is the question. The analysis has been completed with respect to Rock Creek and Muddy Creek. The preferred alternative as determined by the United States Forest Service is Muddy Creek, which correlates to a great extent with an endorsement that Grand County has previously made since this lies in the territorial limits of Grand County, Colorado.

In order to answer the question I just posed, of course you folks have to look at the benefits, consequences, negatives, however you may put it, with respect to the proposed project. The benefits obviously are economic, the negatives obviously are environmental consequences or environmental impacts.

Just a very brief history with respect to Grand County and the precipitation that falls there. Roughly every 12 months half of our precipitation is diverted to the Front Range of Colorado. This started, of course, many years ago. Our precipitation is roughly a million acre/feet a year. A little less than half a million acre/feet is taken out of our county which is 100 percent consumptive.

Response

Comment Letter A

14

The Muddy Creek project is the first effort as far as I know of in an attempt to get water back in the high drainage near where the water is removed. I will explain that in just a minute.

Green Mountain Reservoir, of course, as a result of the Colorado Big Thompson system, was put on the West Slope just outside our county to replace water that the CBT diverts to the East Slope. That has worked extremely well for the West Slope of Colorado. However, no benefit from Green Mountain has been able to come about or occur above the confluence of the Blue and the Colorado River because an exchange upstream, particularly to the Fraser, is impossible.

Muddy Creek will allow the Fraser question, of which I'm hoping some of you are familiar with -- there is not time to explain it -- Muddy Creek will allow monies from a lease that the Colorado River District has signed with Denver as a result of Muddy Creek, monies to go to solve the Fraser problem. It's a two-step process.

Consequently, Grand County has to have Muddy Creek in order to put some water in the Fraser, if you can follow my correlation along that line. Right now there is no way we can get new water in the Fraser Basin. It's been tried, it does not work. There's no way Grand County particularly can afford anything construction-wise up there.

Response

Comment Letter A

15

As a result of the Denver lease which has been signed that will utilize waters out of Muddy Creek, monies from that lease can solve the Fraser question. Kremmling, west Grand County, over the last three to five years has been economically hit extremely hard with the AMAX shakiness so to speak. Their employment has dropped drastically.

Louisiana Pacific, the beautiful wafer-board mill and the saw mill, the saw mill now has been closed down for about three years. Agriculture the last three to five years has not been a booming circumstance.

Recreation and tourism that Muddy Creek will provide will give Kremmling and west Grand County a fantastic shot in the arm. Granted there will be a very short spurt with respect to construction. I discount that.

The recreation and tourism that Muddy Creek will provide will be a tremendous benefit to our county and as far as I'm concerned the West Slope of Colorado.

The Governor of the State of Colorado has endorsed Muddy Creek as a partial solution to solve an interim circumstance with respect to the Front Range. The environmental impacts as far as I'm concerned have been very adequately addressed and stand ready now to be addressed with respect to the construction of the reservoir.

Overall Muddy Creek benefits west Grand County, east Grand County, the West Slope of Colorado, and according

Response

Comment Letter A

to the Governor the entire State of Colorado.

I ask that you please extend favorable consideration to the Muddy Creek project and issue the permits that are necessary that will allow this proposed project to become a reality for the benefit of the State of Colorado.

Thank you very much.

MR. JACKSON: Thank you, Mr. Needham. Any of the panel members have any questions for Mr. Needham?

All right, we will go down the list now. Mr. Phil McCrury, Colorado Trout Unlimited.

MR. McCRURY: My name is Phillip McCrury. I am an attorney in Denver. I have represented Colorado Trout Unlimited for about two years in this project and in the course of that I have gotten to know a great many of you in this room, worked with you.

I have a formal statement addressed to the Forest Service and Bureau of Land Management which I would like to read. The statement is as short as lawyers are able to do these sorts of things.

Thank you for the opportunity to appear and provide comments on behalf of Colorado Trout Unlimited. As many of you here tonight are aware, Colorado Trout Unlimited has been involved in this project for several years, expressing its views and concerns as the EIS process has unfolded.

We view the proposals under consideration tonight as

A-2

Response

A-2 Thank you for your comment.

Comment Letter A

significantly different from the proposals under consideration a year and a half ago when we made our last public appearance before the Colorado River Water Conservation District. We think the project sponsors has changed because the River District and the many agencies involved have made themselves available in a constructive manner to hear the public's concern about a reservoir on Rock Creek.

We believe that the movement from the Rock Creek site as a preferred alternative to the Muddy Creek site as a preferred alternative is one of the best demonstrations of cooperation and agency sensitivity to public and scientific concerns that Colorado has seen in a long time.

As a result, Colorado Trout Unlimited wants to use this public comment opportunity to thank the many agencies and their staffs for their cooperation and their thoughtful consideration regarding this project. We have had generous access to scientific data and assistance from personnel within the Forest Service, the Division of Wildlife, the BLM, the U.S. Fish and Wildlife Service, and in particular the Colorado River Water Conservation District.

We especially want to compliment Mr. Dave Merrit, the River District's Project Engineer. During the past 18 months we have appeared in a number of different public forums with Mr. Merrit to debate the pros and cons of Rock

Response

Comment Letter A

Creek and Muddy Creek and he has been more than generous with his private time as well. During all of our time together Dave has remained the consummate professional. We have disagreed strongly on the issues, but our disagreements have never been personal.

Colorado Trout Unlimited believes that it is this spirit and this level of professionalism which has resulted in this project moving from Rock Creek as the preferred alternative to Muddy Creek as the preferred alternative, and we want to applaud this process and compliment all of the agencies and people involved.

C.T.U. has never agreed that there is a present, proven need for a reservoir on Rock Creek or Muddy Creek in order to serve Western Slope water needs. We do, however, recognize that this size reservoir can play a significant role in the metropolitan Denver water supply as part of an alternative to the construction of Two Forks Dam.

A-3 Accordingly, in our last public appearance in this matter to state our opposition to the construction of a reservoir on Rock Creek, we expressed our willingness to cooperate in the Muddy Creek alternative and to serve as a spearhead for the development of a tailwater fishery and recreational access around the Muddy Creek Reservoir.

We want publicly to repeat that commitment here

Response

A-3 Thank you for your comment.

Comment Letter A

tonight. Thank you for the opportunity to appear.

MR. JACKSON: Thank you. Any of the panel members have any questions? Thank you very much.

The next person listed is Uli Kappus; is that correct?

A-4 MR. KAPPUS: That's correct. I'm Uli Kappus and I'm also the Executive Director of the Colorado Water Resources and Power Development Authority, but I would like to give you my home address because I would like to speak as a private citizen tonight. That is 10920 Park Range Road in Littleton.

I have been recreating on Muddy Creek in the drainage probably for a little over the past decade and I can tell you the fishing potential of a reservoir in that area I think is significant.

I have caught a lot of big fish in the headwaters and I have also caught a lot of fish in the Colorado, and it seems to me that with a reservoir in that location it would have a tremendous impact on cleaning up what I would consider a very serious non-point pollution load to the Colorado River because many a day I have left Littleton with my kids and we drive all the way out to Kremmling only to find there was a shower and that the whole Colorado River is flooding down. Then, of course, we fish at some other fishing facility in that part of the world.

Response

A-4 Thank you for your comment.

Comment Letter A

I also have a lot of friends there that I deer-hunt and elk-hunt with in that drainage, and I can tell you that the economic boom that Bill Needham was talking about is really desperately needed in that part of the world.

I think overall from a standpoint of the spirit of cooperation that the Muddy Creek project represents from the standpoint of solving partially Front Range water needs and Western Slope water needs, I view this project as a real opportunity for the State of Colorado to get on with a very, very pressing agenda called water development.

Thank you.

MR. JACKSON: Thank you very much. Questions from the panel? Mr. Chips Berry.

MR. BARRY: Thank you. My name is Hamlet J. Barry, H-a-m-l-e-t B-a-r-r-y. I am Executive Director of the Colorado Department of Natural Resources, 1313 Sherman Street, Denver. I am here representing the Governor and the Department of Natural Resources of which the Division of Wildlife is a part.

A-5

First I would like to compliment the federal agencies on a new style podium. This way if I drool, as I often do in EIS hearings, it won't ruin my shoes. I will be charged with evaporative losses as I blow hot water over cool, but that's okay.

I have six relatively brief points to make. First

Response

A-5 Thank you for your comment.

Comment Letter A

of all, we welcome preparation of the supplemental EIS and support its designation of the 60,000 acre/foot Muddy Creek as a preferred alternative.

Secondly, the supplemental EIS does a competent job of analyzing impacts of the Muddy Creek and suggesting mitigation options that would prove effective. We think that the draft EIS and supplement have done a thorough and adequate job of disclosing environmental impact.

Third, mitigation will not be simple, but I think everybody in this process is intent on designing and carrying out mitigation measures that will work. The result will be a Muddy Creek project that performs well with minimum impact to the natural environment.

Fifth, the Muddy Creek will play an important part in providing water to the Denver metropolitan area. That's the reason the Governor wholeheartedly supports this project because we believe that it benefits both the East Slope and the West Slope, it benefits the River District and the Denver Water Board.

You always hear about win/win situations. This is one of those rare things that all we bureaucrats always look for, so we wholeheartedly support that. We support the proper permitting and construction of the project.

Lastly, the sixth point is my department is Natural Resources and it includes the Water Conservation Board and

Response

Comment Letter A

the Division of Wildlife and Division of Parks and others. We will cooperate fully with the River District for the proper permitting of Muddy Creek.

MR. JACKSON: Thank you. Any questions of Mr. Berry? Miss Ruth Backley.

A-6 MS. BECKLEY: My name is Ruth Backley and I live in Littleton, Colorado.

Nearly two years ago I began contacting people in the Rock Creek area, hikers, hunters, fishermen and women, trail riders, advising them of the proposal to dam the stream. I wrote letters to the supervisor of Routt National Forest and asked those I contacted to do the same, outlining our objections to damming Rock Creek.

On behalf of myself, my family, and the many people who admire all the attributes of Rock Creek and the area surrounding it and find there true recreation, I wish to to express appreciation to all those responsible for recommending that Rock Creek not be dammed.

Thank you.

MR. JACKSON: Thank you. Any questions?

I have one other speaker listed, Mr. Gregg Hobbs.

A-7 MR. HOBBS: I am Gregg Hobbs. I am principal counsel for the Northern Colorado Water Conservancy District and municipal subdistricts of the Northern Colorado Water Conservancy District.

Response

A-6 Thank you for your comment.

A-7 Thank you for your comment.

Comment Letter A

I want to bring to you the endorsement of our Board of Directors and our management, Mr. Larry Simpson, manager, for the 60,000 acre/foot Muddy Creek Reservoir and ask that all federal agencies issue all necessary rights-of-way and approval and ask that the state agencies do likewise with their authority, including 401 certification. I know the fads okay.

It is very important that the Muddy Creek project go forward. It is the culmination of the 1980 negotiations between the Northern Colorado Water Conservancy District's municipal subdistricts and the River District and other West Slope entities.

The Muddy Creek will not only provide a strong recreational base for Grand County on the West Slope but a water yield that can be used in combination with other existing facilities to try to make maximum cooperative use between the Denver Water Board, the Northern District and the River District.

We think the project is in the public interst and we hope the Corps of Engineers will find it so and that the Forest Service and the BLM will issue the necessary permits.

I do ask for the chance to submit comments by your November 22nd date that further amplify our endorsement. Both of our entities are political subdivisions of the

Response

Comment Letter A

State of Colorado.

MR. JACKSON: Any questions of Mr. Hobbs?

MR. HARR: I would like to clarify that the closing date is November 25th.

MR. HOBBS: Thank you. Three extra days is all I need. I got an extension and didn't even ask for it.

MR. JACKSON: I have no other speakers on the list. Is there anyone else present who would like to make an oral statement this evening?

The gentlemen in the back, would you come and sign in please.

MR. SANDS: That's what I get for coming late. For those of you who don't know me, I'm Joe Sands from Summit County -- certainly not a water expert on any level of expertise that the great, great Hobbs is, but on the other hand a bit of a water activist who does read the agreements that are signed and those kinds of things like Rock Creek and Muddy Creek EIS's are based on, and the problem I find from the Summit County attitude -- from the Summit County altitude and attitude of water supply is that we have a 17-page document here that basically in the three or four presentations that I have seen of it in Summit County not once has this document itself been passed out, been gone over page by page as to how it affects Summit County.

Response

Comment Letter A

As I read your Rock Creek/Muddy Creek EIS there are a lot of good things in the Muddy Creek format of that, there are some things that it accomplishes, but there's also some bad mitigating things to the lower Blue River, some possibilities if you don't tie them in tight with the other agreements, the Green Mountain Reservoir, the lower Blue between Dillon and Green, the lower Blue between Green and the Colorado River will all suffer.

Now it has been stated oh, we'll work these out and it's stated in there that we'll work these out into an agreement where we'll be satisfied to the maximum flow that is possible to serve the riparian habitat and to serve the fishery.

A-8 Gentlemen, if you issue a permit that should not be a general statement, that should be criteria that is being met in this format. Too often in Summit and Grand Counties, to quote John Nichols, the Zopilotes have outnumbered the Juha Mondragons.

A-9 I think we have to change some of that attitude. I think we have to make agreements that look at the other agreements and look at the Shoshone Compact and look at the Denver/Summit County agreement and look at all the others and take into effect how they interrelate. Quite honestly I don't see that all that is accounted for in your EIS. I think there are some mitigating circumstances there

Response

A-8 Any permit or right-of-way issued would not be a general statement. Specific criteria to include any mitigation and monitoring requirements will be included.

A-9 A wide range of related issues and agreements is considered in the EIS, including a detailed history of the proposed project (Section 1.3 SDEIS), the Metropolitan Denver Water Supply System-wide EIS (Sections 1.2.3.2 and 1.5.2), and many structural and non-structural alternatives (Section 2.2). The Denver-Public Service Company Shoshone agreement is evaluated in detail (See Section 2.2.3.2 and Appendix E). While the Denver/Summit County agreement was not referenced specifically, its ramifications were considered in the hydrologic analysis.

Comment Letter A

that depending on what happens, on how the hydraulics work, how they interrelate, that effect whether or not it is near the win/win situation it is said to be.

There is no doubt in my mind that if I was from the Front Range or a Weld County corngrower I'd think that's a win/win statement. For the Western Slope, particularly for the headwater counties of the Western Slope, which I feel have been somewhat forgotten about by the River District, I question if it's near a win/win situation.

Thank you.

MR. JACKSON: Thank you, Mr. Sands. Any questions from Mr. Sands?

MR. ATKINS: I have one question. You referenced a 17-page document when you first started. What were you referring to?

MR. SANDS: The River District, the Northern Conservancy District and the Denver Water Board.

MR. JACKSON: I have no other speakers listed. One more call for anybody that may have come late and would like to make a statement. All right, hearing none, the public comment period on this Supplemental Draft Environmental Impact Statement will remain open until November 25, 1988.

Written statements in addition to what you may have given tonight may be addressed to the Kremmling Resource Area at the address given earlier and to the U.S. Forest

Response

Comment Letter A

Service at the address given earlier.

I would like to thank you all for attending. This hearing is now closed.

(Hearing concluded at 7:34 p.m.)

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C E R T I F I C A T E

I, Beverlee Bauer Hedrick, do hereby certify that the above and foregoing is a true and correct transcript of my shorthand notes taken at the time and place as set forth on page one hereof.

Dated at Denver, Colorado, this 27th day of November, 1988.

BEVERLEE BAUER HEDRICK
Certified Shorthand Reporter

Response

Comment Letter B

MINUTES OF THE
ROCK CREEK/MUDDY CREEK PUBLIC HEARING
OCTOBER 4, 1988

DATE: OCTOBER 4, 1988

TIME: 7:00 P.M.

PLACE: COUNTY FAIRGROUNDS, KREMMLING, COLORADO

ATTENDING:

Roy Jackson	Bureau of Land Management Little Snake Resource Area
Paul Holden	313 West
Pete Lagesse	Resource Consultants, Inc
Mac Meegole	Bureau of Reclamation
Dave Mattick	Colorado River Water Conservation District
Dave Atkins	Bureau of Land Management Kremmling Resource Area
Dave Marr	Bureau of Land Management Kremmling Resource Area
Roy George	Forest Service, Teapa District
Grady McNure	Corps of Engineers
Jim Chubrillo	Colorado Department of Health, Water Quality Control Commission

(See the attached attendance roster for a detailed list of the public attending this hearing)

The meeting began at 7:00 P.M. with Roy Jackson opening with the following narrative:

Ladies and gentlemen, this public hearing will now come to order. My name is Roy Jackson and I'm the Area Manager of the Little Snake Resource Area, Bureau of Land Management, in Craig, Colorado.

Response

Comment Letter B

B-1 Paul Ohrl, Grand County Commissioner, Box 65, Kremmling.

I won't take ten minutes. It looks like we are coming to the end of the process which takes a long time basically which started as a result of the Windy Gap project litigation. Many dollars and hours spent in evaluation looking for a different alternative for that project. Rock Creek was evaluated along with the alternative Muddy Creek. It looks like Muddy Creek is the preferred one. I do believe that Muddy Creek is one site that has many more positives than negatives. It is a good-sized reservoir, and will have positive effects I think on old to late summer rafting on the lower Colorado and from a recreational standpoint, I think it will have more value than a lot of people probably originally gave it. It will be a very good recreational facility. This site for outweighs the negatives, and speaking for myself personally I support it and speaking for the Board of Grand County Commissioners, we support it wholeheartedly.

B-2 Dirk Lennard, Box 34, Frazer, Colorado, representing Grand County Commissioners.

(Please note, the transcription of this statement is not completely verbatim because because part of the statement was inaudible for transcription).

I would like to elaborate here. I would like to go another step. I see in this process, the dollars put into the study process, when we started in the process there would be money spent on the Fraser Valley Project. I can only emphasize that I have worked a lot of hours to get a commitment from several agencies including the Denver Water Board and a group of interested and highly concerned water district individuals in the Fraser Valley. In that process, we are at a point within six months to have a project identified. Muddy Creek, you know I am unsatisfied with the name given it, I would rather say Wolford Mountain Reservoir. I like that better. As a recreational facility, Muddy Creek doesn't strike as very well. Wolford Reservoir, when it is completed, will be the project that will give us projects up the river. I can only say that I am totally for the Wolford Mountain Project to be built.

At this time, Roy Jackson asked if there were any other elected public officials that would like to speak?

B-3 John Frossley, Mayor of Kremmling, representing the Town of Kremmling.

(This statement is also not completely verbatim as parts of the statement were inaudible for transcription).

I would like to go on record supporting Muddy Creek strictly for the economic impact to Kremmling. Kremmling is in serious economic trouble. Right now the town of Kremmling is basically a pass-through town, no recreation and not a particular destination. We can't dispute that the reservoir will be a tremendous support and would like to go on record as in support of the project.

Response

B-1 Thank you for your comment.

B-2 Thank you for your comment.

B-3 Thank you for your comment.

Comment Letter B

Roy Jackson then gave one more call for elected officials.

There was no response.

Roy Jackson then stated that he would start down the list of speakers. Miss Elizabeth Mitchell?

Elizabeth Mitchell - I pass, what I was going to say has been already said.

Roy Jackson - Thank you. Mr. Stan Carter?

B-4 Stan Carter, Attorney for Middle Park Water Conservancy District, P.O. Box 500, Granby, Colorado

First of all, I would kind of like to second what some of the other people said. My preference is that if you are going to name a reservoir, it should represent the people.

The Middle Park Water Conservancy District presently provides water for exchange by virtue of the Windy Gap Agreement to the following entities:

Blue River Water District
Columbine Lake Water and Sanitation District
Copper Mountain Water and Sanitation District
Town of Granby
Grand County Water and Sanitation District No. 1
Town of Kremmling
Town of Silverthorne
Snake River Water District
Summit County
Grand County
Winter Park Water and Sanitation District
Town of Frisco
Town of Fraser
Grand Lake Metropolitan Recreation District
Three Lakes Water and Sanitation District
Dillon Valley Water and Sanitation District
North Shore Water and Sanitation District

and by virtue of that, I would say it probably serves 500 families and approximately about 80% of the mining population of Grand and Summit Counties and the purpose of the Windy Gap Agreement was to get water over on the Western Slope and particularly to the affect counties of Grand and Summit Counties.

Response

B-4 Thank you for your comment.

Comment Letter B

The 2,000 acre feet that Middle Park Water Conservancy District has in Muddy Creek Reservoir will improve the dependability of the water that Middle Park supplies to all these entities. The Muddy Creek Reservoir site will also have a positive economic benefit to Grand County and Middle Park supports that site.

Roy Jackson - Thank you. I have a question mark by the name Betty Denato.

Betty Denato declined comment.

Roy Jackson - I also have a question mark by the name Bernice Overholt.

Bernice Overholt - decline comment.

Roy Jackson - Mr. Dennis Ducommun?

B-5 Dennis Ducommun, Superintendent of Grand County Water & Sanitation District, that provides part of the Winter Park Area.

Grand County Water and Sanitation District Board wishes to go on record of supporting the construction of the Muddy Creek dam and reservoir. This facility will have the multiple purpose of providing storage for the future growth in Western Colorado, assisting a near-term water supply shortage in metropolitan Denver, creating an income source for Western Colorado to solve the water supply problems, and creating a first-class recreational facility.

We have purchased 250 acre feet of Windy Gap water which is beneficial to us. A project would fire up our Windy Gap water. When Granby spills our Windy Gap water in a wet year, our water could be made up out of Muddy Creek.

There are few opportunities in which government entities can benefit, plus meet the needs of many by approving this single action.

Thank you.

Roy Jackson - Thank you very much. Mr. Paul Grant?

Paul Grant, P.O. Box 286, Hot Sulpher Springs, Colorado.

There have been a lot of positive things said about Muddy Creek/Wolford Reservoir or whatever you want to call it. There are a few things that I think are still concerns that aren't addressed in the Environmental Impact Statement. The

Response

B-5 Thank you for your comment.

Comment Letter B

B-6 mitigating the impacts of dewatering the Colorado River between its headwaters and Muddy Creek diverts additional waters from the headwaters effects all of the towns and ranchers near the headwaters and Muddy Creek. I work in the rafting industry and there is no question that we prefer Muddy Creek over Rock Creek. It may actually enhance our situation but I think additional diversions from the upper Colorado at certain times of the year may dewater the river to a point where it is not beneficial to the existing towns and ranches. The other case would be on the Blue River and questions as to whether there would be additional diversions out of the river from what there are now.

B-7 There is a rafting industry that exists on the Blue River too between Dillon Reservoir and Green Mountain and they are bringing in a substantial amount of money which is not quantified in the Environmental Impact Statement - they say there is some impact but there but you can't really tell what it will be. It wouldn't be all that difficult to quantify.

B-8 I think one very positive thing about the Environmental Impact Statement, I read some information about releasing water from different levels within the reservoir to balance the temperature, perhaps to enhance the aquatic environment below in Muddy Creek. That was kind of discussed in there but not really saying that was going to take place. That would be a very positive thing to recreation in this area and have a positive effect on more and more people fishing down below where Muddy Creek dumps into the Colorado and any enhancement of the water quality from Muddy Creek coming into the Coloredo would be beneficial.

B-9 In general, I would have to say definitely from a rafting perspective, that all of the different projects that have been discussed and brought up here, the Muddy Creek Reservoir is much better than Rock Creek. As a citizen of Grand County I am still concerned that the upper basin storage that has been discussed and kind of on the planning table that that storage has got to come on line to augment the flow of this section of the headwaters. That is a timing thing. Is Mudde Creek going to be built many years before a reservoir is built upstream? In that case, then many people are going to have some negative impacts that really hasn't been addressed in the Environmental Impact Statement. On the other hand, if the timing were such that the upper basin came on line at the same time as Muddy Creek, that would be a different situation. The existing flow could be maintained.

That's all I have to say.

Response

B-6 See Response to Comment 103-2. Because of the timing of substitutions of water (late summer and early fall) and the type of year in which substitutions would be made (dry years) no significant impacts to the rafting industry on the Blue River are anticipated from the proposed project, but cumulative impacts with other projects may be significanc. This evaluation is supported by additional hydrologic data presented in the SDEIS (See Section 4.3.3.4 - Blue River).

B-7 See Response to Comment B-6. The difficulty is in quantifying the impact on rafting. Flow changes by this project would be small, so little economic impact would result. The impact of the Two Forks project may in itself have major impacts on the Blue River rafting. The EIS on the Two Forks Projsct should be consulted for details.

B-8 We appreciate your comment. More detail was not included since it will not be known how good the tailwater will be, and what type of enhancement would be basc, until after the reservoir is constructed and the system has time to mature.

B-9 At present there is no basis for projecting when another reservoir might be built upstream of Muddy Creek. See Response to Comment 101-1.

Comment Letter B

Roy Jackson - Thank you. Mr. Dan Richie?

Dan Richie, P.O. Box 172, Grand River Ranch.

B-10 The ranch owns a fair chunk of the land that would be taken by the reservoir and we aren't very happy about it. I'm not here to oppose this reservoir because the community wants it and the County wants it. There are some things that need to be said and I know nobody is going to like what I am going to say but I'm going to say it. The first question is the question of safety. Earth dams do fail, this one is not likely to fail at all but it could fail and if it does and fails in dry weather. It would cover something like a quarter of the town. If it fails in wet weather, which it is likely to do, if its going to go it would probably be in May or June when there is snowmelt - they didn't give us a map of that - the one they gave us is the dry weather map. But they gave us some charts and the charts say that it would be 10 feet higher than that which would pretty much cover the Town of Kremmling. To me, that's pretty serious. I read this thing and in talking about it, the analysis that was made here gives images for flood data expected for various low failure conditions. Should more exact data regarding peak discharge become important, (become important?) an in-depth study would be required. I just want to suggest that the safety of Kremmling is a very important issue. I've got a bunch of dams up on the Muddy. I've got one with a reservoir about twice the size of this building way up on Milk Creek and they have given us all kinds of trouble about it you know like if someone blew it up with dynamite. Kremmling would never know about it ..... (inaudible for transcription). I just want to say I think this is a very important issue that is not adequately dealt with very well in the Environmental Impact Statement.

B-11 The second question I would like to bring up is the question of shipping water out of Middle Park. You know, by the time Denver gets through sucking water out of the Williams Fork, you know there's not going to be very much left of Williams Fork. It's going to be dry. The land is going to be brown. By the time they dry up the ranches around the Colorado and other areas, we are going to be in the middle of a bunch of dry brown valleys instead of the green ones we've got. There was a time when it didn't matter much how much water Denver or the East Slope took because there was plenty of water. At some point it gets to where it really does matter to us. This dam, no matter what anybody says, will further reduce the flow in the Blue, and the flow below Kremmling and build it much greater above Kremmling from where it is now. Mr. Grant spoke about the rafting, there is a line

Response

B-10 The Forest Service and BLM also consider the question of public safety in Kremmling a very important issue. As required by NEPA, a dam failure analysis in sufficient detail to permit a comparison between public safety issues of the two proposed reservoirs is included in the SDEIS (See Section 4.4.3.3 for Muddy Creek). If the Muddy Creek project is permitted, i.e., should it become important to complete a more detailed analysis, additional analysis would be required as part of project design. Requirements of the Colorado State Engineer for dam construction would have to be met including, frequent inspection, monitoring, and preparation of an emergency preparedness plan.

B-11 See Response to Comments 103-2 and B-6.

Comment Letter B

B-11 in here that says "flow changes in sections of the Colorado River will be limited and would have no significant effects on this form of recreation use". "Especially, since the simulated baseline flows would be inadequate to support existing recreation use." This is just reducing it further. I don't think anyone has stopped to think about what we are doing in the long run. If I were Denver, I wouldn't do this either.

What makes Colorado so special is these mountains. If it weren't for these mountains it would be like Kansas and nobody's going to live there. Santa Barbara County, California, was the only county in California that did not participate in Central California's ...(inaudible) which is a federally subsidized deal. Everybody thought Santa Barbara was crazy for not taking that water. What has happened is that Santa Barbara County is the only county in Southern California that doesn't have an air pollution problem because people couldn't build a whole bunch of houses because there weren't water to do it with. As a result of that, not only is there no pollution in Santa Barbara County but the price of real estate has gone through the roof. The average house in Santa Barbara is a half a million bucks cause they can't build any more. If I were Denver I wouldn't want this water either. I think it is a mistake. Anyway, somebody needs to be saying these kinds of things but if that is what everyone wants we won't oppose it and I'm sure the ranch will get compensated.

Roy Jackson - Thank you. Mr. Jack McElroy?

Jack McElroy - I think I'll pass.

Roy Jackson - Alright sir. Spike Pressley?

B-12 Spike Pressley, P.O. Box 198, Kremmling, Colorado.

I would just like to say I would like to see the dam go through as it is very positive for Routt and Grand Counties.

Roy Jackson - Thank you. Are there any other speakers signed in?

Carolyn Krupp - We have one more.

Roy Jackson - Would you state your name and address?

Dave Abbott, Kremmling, representing the Soil Conservation Board.

Response

B-12 Thank you for your comment.

Comment Letter B

B-13 Concerning the problem with the possible endangered species of plants, my opinion and general opinion of the Board is that this plant is not in danger at least in reference to the location of the reservoir. It can be found in quite a large range in Middle Park and I think adequate precautions can be taken to protect its environment as far as is an endangered species. The other thing we would like to speak to is the economic importance of the reservoir and the possible problem of taking care of the endangered species plant should our stop the reservoir from going into place.

Thank you.

Roy Jackson - Thank you very much. I have no other names on the speaker's list.

At this point, Bill Needham approached the podium.

I did not intend to make a statement. I made a statement in Denver last night.

Roy Jackson - Would you please state your name?

B-14 Bill Needham, Grand County Commissioner. I am also Vice-President of the Colorado River District Board; however, I am not speaking on that organization's behalf. I am speaking as a Grand County Commissioner.

I appreciate everybody's comments that were made. The thing I certainly want everyone to understand, this proposal that the River District has made, is a two-step process hopefully to benefit the upper headwaters of the Colorado River. Muddy Creek of course is the first step in the process of which everyone is aware there is a lease involved of the water to Denver. The financial benefit of that lease will directed toward solving the problem in the Fraser Valley. Granted, I agree, Paul you are right. Timing is very important. We do need storage as high as possible. Muddy Creek will hopefully allow that to happen. There has never been any benefit put forth as high in the drainage to solve particularly the problems of Fraser. One other thing, if we take the monies from Muddy Creek and go into Fraser and get some storage up there, every acre foot that is put that high up will benefit everybody, including Kremmling on down. I agree timing is a circumstance that's going to have to be worked out.

As Paul Ohri indicated earlier, there is never a situation where negatives do not crop up. I think we have to weigh the benefits and the negatives of every proposal.

Response

B-13 We appreciate your comment. The mitigation proposed for the rare plant will prevent the reservoir project from causing significant impacts.

B-14 Thank you for your comment.

Comment Letter B

Response

Hopefully, I am thoroughly convinced that there are more positives than negatives with respect to this proposal. It would be nice if anything of this nature being proposed was 100% positive for everybody. This just cannot happen. I certainly feel very strongly though that the negatives that do exist can be mitigated and will be mitigated.

One of the most important criteria with respect to this proposal is the fact that over the last three to five years, Kremmling has virtually been on its knees and you people can attest to that better than I can. I feel very strongly, not about the construction phase of the reservoir proposal because to me that is a very short-term benefit. Yes, there will be some interest there, but the long-term benefit will be the recreation and tourism that hopefully is directed to the west end of Grand County. That is something that can be a long-lasting situation and at this point, there are monies directed to be in place to develop those recreational opportunities. Frankly, I am very positive about the reservoir as far as the Grand County Commissioners are concerned and I very strongly urge that permits be extended for this project.

Thank you very much.

Roy Jackson - is there anyone else that would like to make a statement this evening?

I would like to remind you that the public comment period for the Supplemental Draft Environmental Impact Statement will stay open until November 25, 1988. Written comments in addition to what has been given tonight should be addressed to the Kremmling Resource Area and to the Forest Service Supervisor's Office in Steamboat Springs.

If there is no one else wishing to speak tonight, this hearing is now closed. Thank you.

There was no response and the hearing was adjourned.

Comment Letter

Response

Comment Letter C

MINUTES OF THE
ROCK CREEK/MUDDY CREEK PUBLIC HEARING
OCTOBER 5, 1988

DATE: OCTOBER 5, 1988

TIME: 7:00 P.M.

PLACE: OAK CREEK HIGH SCHOOL, OAK CREEK, COLORADO

ATTENDING:

Roy Jackson	Bureau of Land Management Little Snake Resource Area
Paul Holden	Sio West
Pete Lagasse	Resource Consultants, Inc
Max Noegele	Bureau of Reclamation
Dave Merrick	Colorado River Water Conservation District
Dave Atkins	Bureau of Land Management Kremmling Resource Area
Dave Herr	Bureau of Land Management Kremmling Resource Area
Ray George	Forest Service, Yampa District
Grady McNure	Corps of Engineers
Bob Dorr	Routt County
Wes Signs	Colorado River Water Conservation District
Pat Cleary	Steamboat Pilot
Dennis Fisher	Routt County
Terry Arnold	Woodward Clyde Construction
Paul Bonnefield	Concerned Citizen

(See attached attendance roster).

Response

Comment Letter C

Roy Jackson then asked Paul Bonnefield to come forward.

Paul Bonnefield then made the following statement:

I apologize for the way I am dressed but I'm on my way to work and I got to catch the train here in a little bit.

Roy Jackson asked Paul to state his name and address for the record.

Paul Bonnefield, P.O. Box 243, Yampa, Colorado, phone number is 638-4296.

C-1 Concerning at least the material that I have read through in the EIS, there is no major objections but there are some things I would like to see them do that I think would improve the program. When I read through the material there I notice that there are several comments about sediments both downstream and the Grand Junction area and also problems with sediments in the reservoir. I would think that perhaps some kind of a simple and inexpensive gravel filter system upstream in the river might at least improve your reservoir for a length of time, improve its tourist quality for some period of time, and not really be too expensive. I do know that at one time they had a gravel system in the water system there in Yampa; it was not 100% effective but it did have some effect and did not cost a great deal of money.

C-2 Also, a concern to me is in the water exchange (which is a fairly detailed thing) between Denver and downstream and so on. I would like to see them in that exchange also include some exchange with the town of Parshall so it can have a municipal waterworks. Parshall has tried for years to get water rights so they can have water and they have had some kind of agreement with the Windy Gap project but it is too far away and there are a lot of complications. If they can get just enough water for the town, then they could become a viable economic area to prosper from the tourist trade. It's there on the Williams Fork Reservoir. I would think this might be looked at and also, and I know you are having meetings later on in the Fraser Valley with Denver and so on, but probably there should be some water tradeoffs that could also help those people in the upper end of the Colorado River Basin there in the Fraser River area. Right now, they are in an area administered by the City of Denver and they simply cannot have their normal growth because they are out of water. I hate to see us trading water off or trading water off downstream and not taking care of our immediate needs right here. I don't think it is too complicated of a problem, but more of a problem of especially the community of Parshall just being aware of the fact that probably a couple of hundred acre feet of water is just traded off one way or another. We are not talking about a large population and we are not talking about a lot of water, and that essentially is my brief comment.

Actually, let me add one more thing. Looking at the work that has been done on this project, and the support that most people I find is behind it, I think Muddy Creek is going to be a prosperous idea for the community. I think it is generally a good idea.

Response

C-1 Thank you for your comment.

C-2 The Town of Parshall is in the Middle Park Water Conservancy District and has access to Middle Park water in Granby or Muddy Creek reservoirs, but to our knowledge has made no request for Middle Park water.

Comment Letter C

Roy Jackson asked if there were any questions of Mr. Bonnefield.

No response noted.

Roy Jackson: I have no other names on the list that are marked to speak. Is there anyone else present that would like to make a presentation? For the record, the public comment period on this Supplemental Draft Environmental Impact Statement will stay open until November 25, 1988. Written comments, in addition to what you have given tonight, may be addressed to the Kremmling Resource Area Office, P.O. Box 68, Kremmling, Colorado, 80459, or to the Forest Supervisors Office, Routt National Forest, 29587 W. U.S. 40, Steamboat Springs, Colorado, 80477.

Thank you all for coming, this hearing is now closed.

Response

Comment Letter D

Date: October 6, 1988.
Time: 7:00 P.M.
Place: Bureau of Land Management
764 Horizon Drive.
Grand Junction, Co
Re: Muddy Creek and Rock Creek/ The Preferred Alternative.

Good evening. I'll call this public hearing to order. My name is Roy Jackson. I'm the Area Manager for the Little Snake Resource Area, Bureau of Land Management, Craig District.

I have been appointed by the Colorado State Director, Bureau of Land Management to conduct this public hearing under the authority of the Secretary of the Interior.

I am a Bureau official, but I have not been involved in the preparation of this Environmental Impact Statement nor in the recommendations being made tonight. So, I am an impartial party to these proceedings.

This is a public hearing of the Bureau of Land Management, United States Department of the Interior and the Forest Service, United States Department of Agriculture. In addition, the Corps of Engineers, Sacramento District is participating in this hearing with respect to their authority under Section 404 of the Clean Water Act.

This hearing is being held to receive information, views, comments and suggestions on the adequacy of the Supplemental

Response

Comment Letter D

MS. RUTH HUTCHINS:

Yes.

My name is Ruth Hutchins. I live at 1575 L Road, Fruita, Colorado. I represent the Mesa County Water Association.

Thank you Mr. Jackson, thank you gentlemen for being here, thank you everybody for the opportunity to speak.

The 1984 Amendment to the Colorado River Basin Salinity Control Act, Public Law 98-569, Section 203-b3, directed the Secretary of the Interior to develop a comprehensive program for minimizing salt contributions to the Colorado River for lands administered by the Bureau of Land Management and submit a report which describes the program and recommended implementation action to Congress to the members of the Advisory Counsel established by Section 204a of this title, by July 1, 1987. This report was done and was available last year.

D·1 Basically, I have one question. Is this dam in keeping, and is this reservior in keeping, with diminishing of the saline flow to the river?

MR. JACKSON

If you are looking for an answer tonight you won't get it.

MS. HUTCHINS:

I know. I'm just asking a rhetorical question.

D·2 Also, I'd like to ask questions to be included in my statement and there's no reference to the loss of water through

Response

D·1 See Response to Comment 114-9.

D·2 There is an analysis of the salt loading potential of the reservoir in Section 4.4.3.3 SDEIS.

Comment Letter D

evaporation which could increase the salinity concentration. There's no satisfactory quantative analysis of amount of salt due to seepage of salts from banks as the reservoir goes up and down. And the local geology of the soils and chemical and physical weathering of the geological materials in the watershed, the parent materials show that this is definitely a fairly saline area. Some of it's BLM lands. Most of it being on private lands which should be under the observation policy of the Soil Conservation Service which is also suppose to help in the salinity control program along with the Bureau of Reclamation. So that is basically my issue of water quality. Does the BLM specific with their plans for cutting down on the salinity, and does it fit in with the Department of Agriculture's plans?

D-2

D-3

I noticed that the River District is planning on monitoring sites afterwards. One at the north end of the reservoir, one at the south end of the reservoir and water quality study and I hope this will fit in with the proposed water quality study. The Mesa County Water Association, in order to predict in the report as working scenarios, claims of an increase of twenty-two milligrams at Cameo. This is one project possibly of many as the River District is building the dam to create funds to pay for the dam and possibly release water to get more money to build another dam.

D-4

We have a high salinity rating at Cameo now and it will

Response

D-3 The objective of BLM's salinity control program is to minimize salinity contributions to the Colorado River from public lands, while recognizing multiple use objectives and authorized uses. The BLM salinity control program is outlined in a July 1987 report to Congress titled, "Salinity Control on BLM Administered Public Lands in the Colorado River Basin." While granting a Right-of-Way for the Muddy Creek project will increase salinity to the Colorado River, BLM is taking other actions on public lands within the Colorado River Basin to reduce salinity. This is in conformance with the Colorado River Salinity Control Program which was developed to allow the upper basin states to develop their compact allowed water without impacting lower basin water users.

D-4 The monitoring program for Muddy Creek discussed in Section 5.3.2 SDEIS would support the water quality modeling study.

Comment Letter D

only continue to go up and we need to have all the facts to kind of know how to prepare. There are two major water suppliers, reservoir suppliers, to get the water out of the Colorado River at Cameo -- Clifton Irrigation District. And Ute uses it as a back-up. So, it is in their best interests, in the water and the people who drink it in the valley, to find out what to expect in the future.

Thank you.

MR. JACKSON:

Thank you very much.

Mr. Glen Miller.

MR. GLEN MILLER:

My name is Glen Miller. I live at 2264 Willow Wood Road in Grand Junction. I'm a consulting hydrologist with about 30 years experience in hydrology. My concern on this project -- oh, by the way, I want to thank you for the supplement and for responding to the concerns in this part of the river systems. On the original draft there were concerns about water quality that really are not adequately addressed in the original draft. They were much better in this one.

My concerns about water quality are the seemingly continual small effects by every project that's in force upstream that have a ten, twenty, thirty, forty milligram liter deliterious (phonetic) effect on this part of world. If they're small enough nobody seems to get concerned about them. Some of

D-5

Response

D-5 Dams are not considered a point source of salinity. The issues of salt loading from Muddy Creek Reservoir and potential downstream salinity impacts are evaluated in Section 4.4.3.5 SDEIS. As disclosed, there will be a change in salinity, but it will be very small. The Colorado River Salinity Control Program was established to permit development to continue in the basin without impacting lower basin water users or requiring project-specific mitigation. See "1987 Review - Water Quality Standards for Salinity - Colorado River System" prepared by Colorado River Basin Salinity Control Forum. This report contains the implementation plan for the salinity control program, and was adopted by each of the 7 basin states as the requirement for triennial review of water quality standards for compliance with Section 303 of the Clean Water Act of 1977.

Comment Letter D

D·5 the local people are concerned. I think you, the federal agencies, ought to be concerned because you are the only ones that can really look into long term, in terms of effects. The previous commentor, I agree with her, that you ought to look very carefully at the BLM mandated and directed to minimize salinity in the Colorado River. The Two Forks E.I.S. claims to increase the salinity at Cameo which is sort of a -- the bell weather gauge for the rest of the valley. Cameo's a few miles upstream from Grand Junction. They claim to increase the salinity there only 17 milligrams per liter. I personally think it's more than that. This project claims to increase it to 22 milligrams per liter. This reflects the sort of -- formally the "double whammy" the river's getting from trading fifty or one hundred milligram per liter water upstream, up the head waters, to transmount diversions and replacing that with, as the report says, 300 milligram per liter water out of Muddy Creek. Now, the data on the report, the basic data that's given the public to review, I believe it's on page 4-131 -- oh, that's the analysis part. One of the tables, I don't recall the table, the basic data indicates the input is 500 milligrams. The stream data that's available estimates salinity levels in Muddy Creek Reservoir. It's not clear in the text in that analysis of the

D·6 22 milligrams per liter effects whether that takes into account an extremely dry year like 1977, 81 or even 88 where averages the data you have now you've gotten, the analysts must make an

Response

D·6 See Response to Comment 122-3.

Comment Letter D

D·6 effort to adjust those to account for a very dry year where salinity of the local river always rises. I saw no adjustment to that. I saw the 300 milligram per liter analysis, but the basic data said 500 milligrams per liter. I suspect that, just the back of the envelope calculations, that that salinity would go at least 30 or 35 milligrams per liter. If we took into account the 500 milligram per liter numbers instead of 300, then I expect in reality to go higher than that if you were to look into the salinity of the river, salinity effects during the year, like a very dry year in 1977, 81 and 88. There's a reference in the E.I.S, this is a minor point but it really doesn't belong in the E.I.S. -- on page 4-131, the writers seem

D·7 to try to justify this 22 milligram liter increase by saying that the Glenwood Springs, Dotsero Springs caused an increase of 110 milligrams per liter. However, that is the truth but, that's been going on in geological time for hundreds of millions of years.

They also say that the irrigation of the Grand Valley locally adds 144 milligrams per liter to river salinity. That is probably correct, but that has been going on for 60 or 70 years. There's a very expensive Federal project on salinity

D·8 control going on in this valley to mitigate that. The concern here is not that 144 milligrams per liter because that's downstream from our headgates. Those comparisons, they don't belong in the E.I.S.. That is my personal opinion.

Response

D·7 The numbers used for comparison were provided to establish the order of magnitude of the projected increase as related to natural processes and other sources.

D·8 See Response to Comment D-7.

Comment Letter D

Those are my main points, the fact that the trade-off in water is probably needed in this part of world, but the trade-off in salinity is one of these incremental nickel and dime things. Two quarts to 20 milligrams per liter this project, 20 or 30 the next project, 30 or 40, and future generations in the valley, twenty, fifty, one hundred years from now are really going to suffer from long term effects of this because most of the dams are in place and in operation. Salinity is almost impossible to change. There's a great discussion in there on phospherous and some of the nutrients in the reservoir proposed to be controlled much easier than salinity and, in fact, I doubt if they would -- if that effect would even felt by the time the water gets down to here in this part of the valley.

Again, thank you for the hearing. I would like to remind you that you do have an opportunity to look this over and have some really long term positive effects on this part of river. I would highly recommend that you look very carefully at that decision about the preferred alternative. Rock Creek versus Muddy Creek. The statement of the E.I.S. says that there would be essentially no difference in salinity if Rock Creek were built instead of Muddy Creek.

MR. JACKSON:

Thank you, Mr. Millar.

Mr. Doug Holling. Is that correct?

Response

Comment Letter D

MR. HOLLING:

D-9 My name is Doug Holling. I live at 2688 Continental Drive in Grand Junction. I'm here for private citizens and speaking for myself. Thank you for the opportunity to speak.

I'm here because I'm concerned about salinity effects also. Both to domestic water supplies, Clifton and Ute and also to some of the crops that we're growing in the valley that have less salt problems than we might like to see and what is going to hapoen to them in the future.

It looks to me like the Rock Creek site would really be a lot better site. This could be one of those things that for a change we'd have something that would improve down here instead of getting worse which seems to happen in most other projects. Thank you. That's all I have to say. Thank you.

MR. JACKSON:

Are there any other individuals present that would like to make a presentation?

All right. I'd like to remind you then that public comments period on the Supplemental Draft Environmental Statement will stay open until November 25, 1988. Written comments in addition to what you have given tonight can be addressed to the addresses given earlier. I'd like to thank all of you for coming and those of you who spoke.

This hearing is now closed.

Response

D-9 Thank you for your comment.

8.0 COORDINATION AND CONSULTATION

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8.0 COORDINATION AND CONSULTATION

The scope of environmental issues to be addressed in this Environmental Impact Statement and the alternatives for analysis were developed in close coordination with numerous agencies and individuals. Attempts to inform and involve the public were directed to all groups which might have an interest in either the Rock Creek or Muddy Creek alternative. A list of preparers was included in the DEIS and SDEIS and is not repeated here.

Consultation and coordination have included pre-scoping and public scoping meetings, meetings on issues and status of the environmental statement and mitigation planning with interested Federal and State agencies as well as public meetings on the Draft EIS (DEIS) and public hearings on the Supplemental Draft EIS (SDEIS). A synopsis for each public scoping meeting was prepared and circulated to cooperating and interested agencies. A transcript for each public meeting on the DEIS and public hearing on the SDEIS was prepared. The list of issues in Section 1.2.4 is a direct result of the scoping process. The following specific coordination and consultation activities have taken place.

Summer 1985 - - - - - Pre-scoping meetings between Forest Service and interested Federal and State agencies (including those considered as candidates for cooperating agency involvement).

July 31, 1985 - - - - Public scoping meeting in Kremmling, Colorado.

August 1, 1985- - - - Public scoping meeting in Yampa, Colorado.

August 2, 1985- - - - Public scoping meeting in Denver, Colorado.

September 3-5, 1985 - EIS coordination meeting in Steamboat Springs, Colorado with Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (COE), and Colorado Division of Wildlife (CDOW).

September 10, 1985- - Meeting in Denver with Bureau of Reclamation and representatives of Boyle Engineering (under contract to Colorado Water Resources and Power Development Authority) to discuss hydrologic and reservoir operation modeling.

September 26, 1985- - Wildlife Work Group meetings in Kremmling, Colorado, and Steamboat Springs, Colorado, with BLM, USFWS, COE, and CDOW.

September 27, 1985- - EIS management meeting in Steamboat Springs, with BLM.

October 9, 1985 - - - Final scope of work for EIS distributed to cooperating agencies for review and comment.

October 10, 1985- - - Special scoping meeting in Frisco, Colorado, for representatives of the Denver Water Board and Metropolitan Water Providers.

November 25, 1985 - - Wildlife Work Group meeting in Kremmling, Colorado, with USFWS, BLM, COE, and CDOW.

January 9, 1986 - - - EIS coordination meeting on recreation issues in Yampa, Colorado, with BLM.

January 10, 1986- - - EIS management meeting in Yampa, Colorado, with BLM.

February 10-11, 1986- EIS coordination meeting in Steamboat Springs, Colorado, with USFWS, BLM, COE, EPA, CDOW, and Grand County.

March 27, 1986- - - - 404 Permit, wetlands, and mitigation meeting with COE in Grand Junction, Colorado.

May 6, 1986 - - - - - EIS coordination meeting in Steamboat Springs, Colorado, with BLM.

May 20, 1986- - - - - Wildlife Work Group meeting in Steamboat Springs, Colorado, with USFWS, BLM, and CDOW.

May 25, 1986- - - - - Meeting with Denver Water Board representatives in Denver, Colorado, on Blue River exchange hydrology.

June 20, 1986 - - - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

July 22, 1986 - - - - EIS coordination meeting in Steamboat Springs, Colorado, with BLM and EPA.

August 27, 1986 - - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

October 1, 1986 - - - Distribution of preliminary draft of Chapters 1-4 of EIS to cooperating agencies (and EPA and CDOW) for review.

October 29, 1986- - - Wildlife Work Group meeting on mitigation issues in Steamboat Springs, Colorado, with BLM, USFWS, COE, EPA, and CDOW.

October 30, 1986- - - Mitigation issues field trip in Rock Creek and Muddy Creek drainages to assess mitigation potential of various sites with BLM, USFWS, COE, EPA, and CDOW.

October 31, 1986- - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

December 1, 1986- - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

December 16, 1986 - - Mitigation issues and alternatives meeting in Grand Junction, Colorado, with BLM, USFWS, COE, and CDOW.

December 31, 1986 - - Meeting with BLM regional hydrologists at Muddy Creek to discuss channel stability concerns.

January 28, 1987- - - Colorado River Water Conservation District Board meeting in Silver Creek, Colorado (open to public). A summary of EIS issues, impacts, and proposed mitigation for both Rock Creek and Muddy Creek alternatives was presented.

February 4, 1987- - - Meeting on mitigation alternatives in Grand Junction, Colorado, with BLM, USFWS, COE, and CDOW.

February 9-10, 1987 - EIS management meetings in Steamboat Springs, Colorado, with BLM.

February 10, 1987 - - Meeting on mitigation alternatives in Kremmling, Colorado, with BLM, USFWS, and CDOW.

May 5-6, 1987 - - - - EIS management meetings in Steamboat Springs, Colorado, with BLM.

May 28, 1987- - - - - Joint USFS and BLM visit to Rock Creek and Muddy Creek sites.

May 28, 1987- - - - - Meeting with representatives of Trout Unlimited to discuss Rock Creek mitigation and visit Egeria Creek.

May 29, 1987- - - - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

July 9, 1987- - - - - Meeting and site visit on mitigation measures with River District, BLM, COE, USFWS, and CDOW.

August 25, 1987 - - - Meeting to discuss proposed mitigation measures, Steamboat Springs, Colorado, with BLM, USFWS, COE and others.

August 26, 1987 - - - Distribution of DEIS for public and agency review.

October 2, 1987 - - - Public meeting on DEIS, Steamboat Springs, Colorado.

October 6, 1987 - - - Public meeting on DEIS, Denver, Colorado.

October 7, 1987 - - - Public meeting on DEIS, Kremmling, Colorado.

October 8, 1987 - - - Public meeting on DEIS, Yampa, Colorado.

October 23, 1987- - - USFS meeting with EPA in Steamboat Springs, Colorado.

November 23, 1987 - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

December 30, 1987 - - USFS and BLM meeting in Denver, Colorado, with Department of Interior Office of Environmental Project Review and COE, USBR and EPA.

January 5, 1988 - - - Coordination meeting between USFS and BLM in Steamboat Springs, Colorado.

February 2, 1988- - - Mitigation meeting in Grand Junction, Colorado, with USFWS, CDOW, Colorado National Heritage Program, COE and BLM.

February 16, 1988 - - EIS management meeting in Steamboat Springs, Colorado, with BLM.

March 10, 1988- - - - USFS and BLM meeting with USDI Office of Environmental Project Review in Denver, Colorado.

March 14, 1988- - - - USFS meeting with BLM on Supplementary Data Report in Steamboat Springs, Colorado.

April 19, 1988- - - - USFS/EPA water quality work group meeting in Denver, Colorado, to discuss Blue River modeling.

April 20, 1988- - - - BLM meeting in Kremmling, Colorado, for rafting interests.

May 25, 1988- - - - - Meeting on Muddy Creek recreation plan/facilities in Kremmling, Colorado, with CDOW, Colorado Division of Parks and Outdoor Recreation, USFWS, and Grand County.

June 30, 1988 - - - - Meeting to discuss comments on Supplementary Draft EIS in Kremmling, Colorado, with USFWS, CDOW, COE and USBR.

August 15, 1988 - - - Distribution of SDEIS for public and agency review.

October 3, 1988 - - - Public hearing on SDEIS, Denver, Colorado.

October 4, 1988 - - - Public hearing on SDEIS, Kremmling, Colorado.

October 5, 1988 - - - Public hearing on SDEIS, Oak Creek, Colorado.

October 5, 1988 - - - BLM and USFS coordination meeting with USBR in Yampa, Colorado.

October 6, 1988 - - - Public hearing on SDEIS, Grand Junction, Colorado.

October 6, 1988 - - - Meeting on mitigation plan with USFWS, EPA, CDOW, COE and USBR in Grand Junction, Colorado.

October 26, 1988- - - Biological Assessment submitted for informal review to USFS.

November 21, 1988 - - BLM and USFS meeting with EPA, USFWS and COE on mitigation issues in Denver, Colorado.

November 28, 1988 - - BLM and USFS EIS management meeting, with USBR in Steamboat Springs, Colorado.

January 9, 1989 - - - BLM and USFS meeting on mitigation plan with USFWS, EPA, COE and CDOW in Steamboat Springs, Colorado.

January 10, 1989- - - EIS management meeting in Steamboat Springs, Colorado.

January 24, 1989- - - Revised Biological Assessment submitted to USFWS for formal consultation.

February 2, 1989- - - BLM and USFWS meeting with USFWS, EPA and CDOW on mitigation plan in Denver, Colorado.

March 9, 1989 - - - - BLM and USFS meeting with USFWS, EPA, COE, USBR and CDOW on mitigation plan in Lakewood, Colorado.

March 9-10, 1989- - - EIS management meeting, with USBR.

April 13, 1989- - - - BLM and USFWS meeting on Biological Opinion.

April 21, 1989- - - - BLM, USFWS, Colorado Department of Natural Resources, Colorado Water Conservation Board meeting with Colorado River Water Conservation District on Biological Opinion and mitigation plan.

May 4, 1989 - - - - - BLM, USFWS, USBR meeting with Colorado River Water Conservation District on Biological Opinion (fish).

May 16, 1989- - - - - BLM, USFWS, Colorado Water Conservation Board, Colorado Water Congress meeting with Colorado River Water Conservation District on Biological Opinion (fish).

May 24, 1989- - - - - BLM, USFWS, Colorado Water Congress meeting with Colorado River Water Conservation District on Biological Opinion (fish).

May 30, 1989- - - - - BLM, USFWS, COE, EPA, meeting to discuss wetlands issues

June 5, 1989- - - - - BLM, USFWS, Colorado Water Congress meeting with Colorado River Water Conservation District on Biological Opinion (fish).

June 12, 1989 - - - - BLM, USFWS, Colorado Water Congress meeting with Colorado River Water Conservation District on Biological Opinion (fish).

August 1, 1989- - - - BLM, USFWS, Colorado River Water Conservation District meeting on Biological Opinion (plant).

September 1, 1989 - - BLM, COE, CDOW meeting on jurisdictional wetlands survey.

September 12, 1989- - BLM, USFS, USBR meeting to review draft FEIS and Muddy Creek mitigation plan.

November 8, 1989- - - BLM and USFS meeting to review USFS comments on FEIS.

November 20, 1989 - - BLM and COE meeting to review results of jurisdictional wetlands survey.

8.0 COORDINATION AND CONSULTATION

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9.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

U. S. Congress - Colorado
- Honorable William Armstrong
- Honorable Hank Brown
- Honorable Ben Nighthorse Campbell
- Honorable Joel Hefley
- Honorable Dan Schaefer
- Honorable Patricia Schroeder
- Honorable David Skaggs
- Honorable Tim Wirth

Federal Agencies
- Advisory Council on Historic Preservation
- Department of Agriculture
  - Soil Conservation Service
- Department of Defense - Corps of Engineers
  - Omaha District
  - Sacramento District
- Department of Energy
- Department of the Interior
  - Bureau of Land Management
  - Bureau of Reclamation
  - Division of Environmental Compliance
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
  - Natural Resource Library
- Department of Transportation
- Environmental Protection Agency (Denver, Colorado)
- Environmental Protection Agency (Washington, DC)

State of Colorado
- Colorado Governor's Office, Director, Intergovernmental Relations
- Colorado State Clearinghouse
- Colorado State Historical Preservation Officer
- Colorado Water Resource and Power Development Authority
- Department of Health
  - Air Pollution Control Division
  - Water Quality Control Division
- Department of Natural Resources
  - Colorado Division of Parks and Outdoor Recreation
  - Colorado Geological Survey
  - Colorado Water Conservation Board
  - Division of Water Resources
  - Division of Wildlife
- State Historical Society of Colorado
- State Planning Coordinator
  - (Department of Local Affairs - Colorado Division of Planning)

Other Government Entities
- Colorado River Water Conservation District
- Grand County Regional Planning Department
- Grand County Water and Sanitation District No. 1
- Kremmling Area Development Association
- Kremmling Sanitation District
- Mesa County Water Association
- Middle Park Water Conservancy District
- Northern Colorado Water Conservancy District
- Northwest Colorado Council of Governments
- Orchard Mesa Irrigation District
- Routt County Regional Planning Department
- Western Area Power Administration
- Wyoming Water Development Commission

Board of County Commissioners
- Eagle County
- Grand County
- Routt County
- Summit County

Cities and Towns
- Town of Granby
- Town of Grand Junction
- Town of Grand Lake
- Town of Hot Sulphur Springs
- Town of Kremmling
- Town of Yampa

Conservation and Environmental Entities
- Audubon Society
- Colorado Archaeological Society
- Colorado Environmental Coalition
- Colorado Wildlife Federation
- Environmental Defense Fund
- Friends of the Earth
- National Wildlife Federation
- Nature Conservancy
- Northwest River Alliance
- Sierra Club
- The Wilderness Society
- Trout Unlimited
- Wilderness Society - Denver

Colorado Newspapers
- Daily Sentinel
- Denver Post
- Glenwood Post
- High Country News
- Middle Park Times
- Rocky Mountan News
- Sky Hi News
- Steamboat Pilot

Educational Institutions
- Colorado State University
- University of Colorado

Others
- Bambi Enterprises
- Benton Land and Livestock Company
- Brownstein, Hyatt, Farber and Madden
- Colorado Float Fishers
- Colorado River Outfitters
- Colorado-Ute Electrical Association
- Conestoga Ranch
- Delaney and Balcomb P.C.
- Denver Water Board
- Grand River Ranch
- Grand River Ranch Corporation
- Homestake Mining Co.
- Joni Ellis River Tours
- Louisiana Pacific
- Musick and Cope
- National Organization for River Sports
- Natural Energy Resources Corporation
- Northwest River Alliance
- Poulsen, O'Dell and Peterson
- Ritschard Cattle Company
- Taussig Ranch, Inc.
- Trans-Mountain Hydro Corp.
- Tri State Generation and Transmission Association
- Western River Guides Association
- Williams, Turner and Holmes

INDIVIDUALS
- Ruth Beckley
- Mark Bernhardt
- Tilman Bishop
- Barbara Blackshear
- Jim Blugerman
- Paul Bonnefield
- John Browne
- Steve Butler
- J. J. Cebula

Charles Cole
Sally Cole
John Courtney
Howard Cox
Richard and M. Curry
Steven Downs
Dennis Ferriman
Tim Foster
Tom Gagnon
Kit Haddow
W. E. Haggerty
Pamela Hain
Gary Hill
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Glenda Hill
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Tom Hill
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Ruth Hutchins
Ingrid Karlstrom
Peter Lagerman
James Linville
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Pamela E. Martin
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Jack McElroy
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Katharine Newton
Bernice Overholt
Al Permut
Mary Jean Perry
Rex Peterson
James Phelps
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John Randolph
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Claudia Rector
Vicki Rosenzweig
Charles Russell
Jacqueline Saputo
Rodney Scarpella
Jane Schleimer
John Spezia
Sidney Spiegel
Kim Vacariu
T. B. Washburne
Dave Wattenberg

Information Copy for Public Review (Libraries)
- Colorado State University Library
- Craig Moffat County Library
- Denver Public Library
- Fraser Valley Library
- Grand County Public Library
- Jackson County Public Library
- University of Colorado Library

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APPENDIX A

Monthly Hydrologic Data - Muddy Creek Reservoir

Metro Denver Lease Demand
and Releases for 15-Mile Reach
Required by United States Fish and Wildlife Service
Biological Opinion

APPENDIX A - MONTHLY HYDROLOGIC DATA

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TABLE A.1

Muddy Creek Reservoir--Discharge Summary

Metro Denver Lease Demand

Fish and Wildlife Service Draft MOU

Summary Table

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	METRO DENVER LEASE: FLOW BELOW RES	METRO DENVER LEASE: DIFF IN FLOW	METRO DENVER LEASE: PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	77	12	-64	-84
	NOV	61	62	2	3
	DEC	35	37	2	4
	JAN	53	55	2	3
	FEB	50	51	2	3
	MAR	29	30	2	5
1962	APR	539	439	-100	-19
	MAY	536	534	-1	-0
	JUN	238	235	-3	-1
	JUL	108	107	-1	-1
	AUG	59	65	6	10
	SEP	31	85	54	174
	OCT	0	12	12	1000*
	NOV	0	13	13	1000*
	DEC	0	13	13	1000*
	JAN	34	35	2	5
	FEB	47	48	2	4
	MAR	77	78	2	2
1963	APR	110	112	2	1
	MAY	144	40	-104	-72
	JUN	38	35	-3	-8
	JUL	17	71	54	316
	AUG	33	165	132	394
	SEP	2	120	118	5832
	OCT	16	154	139	882
	NOV	28	29	2	6
	DEC	22	24	2	7
	JAN	21	23	2	7
	FEB	23	24	2	8
	MAR	27	29	2	6
1964	APR	80	81	2	2
	MAY	201	12	-189	-94
	JUN	151	10	-141	-93
	JUL	58	62	4	7
	AUG	87	138	51	59
	SEP	12	237	224	1825

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	|--METRO DENVER LEASE--| FLOW BELOW RES	DIFF IN FLOW	PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	18	50	32	176
	NOV	23	24	2	7
	DEC	19	20	2	8
	JAN	17	19	2	9
	FEB	18	20	2	10
	MAR	15	17	2	10
1965	APR	134	135	2	1
	MAY	347	12	-336	-97
	JUN	349	233	-116	-33
	JUL	97	96	-1	-1
	AUG	99	100	1	1
	SEP	57	112	54	94
	OCT	60	63	2	4
	NOV	54	56	2	3
	DEC	26	28	2	6
	JAN	44	45	2	4
	FEB	30	31	2	6
	MAR	64	66	2	2
1966	APR	77	78	2	2
	MAY	109	43	-66	-61
	JUN	15	16	1	4
	JUL	5	26	21	409
	AUG	4	80	77	2134
	SEP	15	87	72	475
	OCT	40	42	2	5
	NOV	43	44	2	4
	DEC	25	27	2	6
	JAN	24	25	2	7
	FEB	32	34	2	5
	MAR	80	81	2	2
1967	APR	100	101	2	2
	MAY	154	12	-142	-92
	JUN	180	133	-47	-26
	JUL	59	57	-1	-2
	AUG	49	125	76	154
	SEP	47	144	97	208

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	|--METRO DENVER LEASE--| FLOW BELOW RES	DIFF IN FLOW	PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	31	103	72	229
	NOV	38	40	2	4
	DEC	35	36	2	4
	JAN	46	48	2	3
	FEB	52	53	2	3
	MAR	49	50	2	3
1968	APR	99	101	2	2
	MAY	209	12	-198	-94
	JUN	280	221	-59	-21
	JUL	94	93	-1	-1
	AUG	113	113	1	0
	SEP	51	105	54	106
	OCT	45	47	2	5
	NOV	64	66	2	2
	DEC	54	55	2	3
	JAN	49	51	2	3
	FEB	47	49	2	4
	MAR	52	53	2	3
1969	APR	161	96	-65	-40
	MAY	190	189	-1	-1
	JUN	144	141	-3	-2
	JUL	68	67	-1	-2
	AUG	17	23	6	34
	SEP	27	81	54	204
	OCT	76	79	2	3
	NOV	61	62	2	3
	DEC	57	59	2	3
	JAN	60	62	2	3
	FEB	48	50	2	4
	MAR	63	64	2	2
1970	APR	159	160	2	1
	MAY	494	423	-71	-14
	JUN	348	345	-3	-1
	JUL	125	123	-1	-1
	AUG	74	80	6	8
	SEP	28	82	54	191

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	|--METRO DENVER LEASE--| FLOW BELOW RES	DIFF IN FLOW	PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	99	101	2	2
	NOV	107	108	2	1
	DEC	85	87	2	2
	JAN	84	86	2	2
	FEB	100	101	2	2
	MAR	110	112	2	1
1971	APR	145	74	-71	-49
	MAY	212	210	-1	-1
	JUN	306	303	-3	-1
	JUL	319	318	-1	-0
	AUG	153	159	6	4
	SEP	120	174	54	45
	OCT	63	65	2	4
	NOV	44	45	2	4
	DEC	55	57	2	3
	JAN	28	30	2	5
	FEB	44	46	2	4
	MAR	78	79	2	2
1972	APR	123	125	2	1
	MAY	277	206	-71	-26
	JUN	262	259	-3	-1
	JUL	71	75	4	6
	AUG	41	47	6	14
	SEP	39	93	54	139
	OCT	55	58	2	4
	NOV	39	41	2	4
	DEC	17	19	2	9
	JAN	11	13	2	22
	FEB	9	13	4	49
	MAR	14	15	2	11
1973	APR	107	108	2	1
	MAY	451	371	-80	-18
	JUN	298	295	-3	-1
	JUL	148	147	-1	-1
	AUG	89	90	1	1
	SEP	37	91	54	145

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	METRO FLOW BELOW RES	DENVER DIFF IN FLOW	LEASE--| PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	37	39	2	6
	NOV	48	50	2	3
	DEC	47	49	2	3
	JAN	48	49	2	3
	FEB	40	42	2	4
	MAR	80	82	2	2
1974	APR	143	145	2	1
	MAY	467	401	-66	-14
	JUN	225	222	-3	-1
	JUL	110	109	-1	-1
	AUG	54	59	6	11
	SEP	7	63	56	750
	OCT	45	47	2	5
	NOV	52	53	2	3
	DEC	37	39	2	4
	JAN	30	32	2	5
	FEB	38	40	2	5
	MAR	48	49	2	3
1975	APR	99	100	2	2
	MAY	330	257	-73	-22
	JUN	394	391	-3	-1
	JUL	122	121	-1	-1
	AUG	78	84	6	8
	SEP	36	90	54	149
	OCT	49	51	2	4
	NOV	58	60	2	3
	DEC	68	69	2	2
	JAN	60	62	2	3
	FEB	57	58	2	3
	MAR	83	84	2	2
1976	APR	130	131	2	1
	MAY	292	220	-71	-24
	JUN	132	129	-3	-2
	JUL	56	55	-1	-2
	AUG	54	60	6	11
	SEP	31	85	54	174

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	|--METRO DENVER LEASE--| FLOW BELOW RES	DIFF IN FLOW	PERCENT CHANGE
		CFS	CFS	CFS	%
	COL	1	2	3	4
	OCT	39	41	2	6
	NOV	31	33	2	5
	DEC	49	51	2	3
	JAN	10	13	3	27
	FEB	30	32	2	6
	MAR	32	34	2	5
1977	APR	88	90	2	2
	MAY	67	69	1	2
	JUN	14	15	1	5
	JUL	16	211	195	1184
	AUG	27	331	303	1112
	SEP	17	21	4	21
	OCT	36	38	2	6
	NOV	32	34	2	5
	DEC	24	26	2	6
	JAN	39	41	2	4
	FEB	40	42	2	4
	MAR	72	73	2	2
1978	APR	183	185	2	1
	MAY	415	12	-403	-97
	JUN	395	196	-199	-50
	JUL	121	119	-1	-1
	AUG	49	77	28	56
	SEP	18	106	88	498
	OCT	43	45	2	5
	NOV	52	54	2	3
	DEC	62	64	2	2
	JAN	51	53	2	3
	FEB	53	55	2	3
	MAR	39	41	2	4
1979	APR	152	153	2	1
	MAY	597	471	-126	-21
	JUN	422	418	-3	-1
	JUL	91	90	-1	-1
	AUG	71	77	6	8
	SEP	4	63	59	1513

1000* actual value equal to infinity

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR		INFLOW TO RES	|--METRO FLOW BELOW RES	DENVER DIFF IN FLOW	LEASE--| PERCENT CHANGE
		CFS	CFS	CFS	%
COL		1	2	3	4
	OCT	27	29	2	8
	NOV	47	49	2	3
	DEC	38	39	2	4
	JAN	46	48	2	3
	FEB	45	47	2	4
	MAR	39	40	2	4
1980	APR	151	152	2	1
	MAY	512	436	-76	-15
	JUN	169	166	-3	-2
	JUL	77	76	-1	-2
	AUG	79	85	6	8
	SEP	31	85	54	175
	OCT	47	49	2	5
	NOV	46	47	2	4
	DEC	38	39	2	4
	JAN	36	37	2	4
	FEB	52	53	2	3
	MAR	44	46	2	3
1981	APR	58	59	2	3
	MAY	115	44	-71	-62
	JUN	74	71	-3	-4
	JUL	77	91	14	19
	AUG	41	389	348	859
	SEP	36	39	4	10
	OCT	59	61	2	4
	NOV	55	56	2	3
	DEC	48	50	2	3
	JAN	60	62	2	3
	FEB	49	50	2	4
	MAR	24	25	2	7
1982	APR	43	45	2	4
	MAY	270	12	-259	-96
	JUN	298	170	-129	-43
	JUL	106	104	-1	-1
	AUG	39	40	1	1
	SEP	51	63	12	23
1962	AVG	94	93		
thru	MIN	0	10		
1982	MAX	597	543		

7/13/89

MUDDY CREEK RESERVOIR OPERATIONS--DISCHARGE SUMMARY
-- FISH AND WILDLIFE SERVICE DRAFT MOU --

WATER YEAR	INFLOW TO RES	|--METRO DENVER LEASE--| FLOW BELOW RES	DIFF IN FLOW	PERCENT CHANGE
	CFS	CFS	CFS	%
COL	1	2	3	4
1962	151	143	-8	-5
1963	42	62	21	49
1964	60	69	9	15
1965	100	70	-29	-30
1966	42	52	10	24
1967	69	69	-0	-0
1968	91	82	-10	-11
1969	77	77	0	1
1970	133	133	1	0
1971	153	154	0	0
1972	94	94	1	1
1973	106	106	-0	-0
1974	109	110	1	1
1975	109	109	0	0
1976	89	89	0	0
1977	35	80	44	126
1978	119	79	-39	-33
1979	136	133	-4	-3
1980	105	105	0	0
1981	55	81	26	48
1982	92	62	-30	-33
1962 AVG	94	93		
thru MIN	35	52		
1982 MAX	153	154		

TABLE A.2

Blue River below Green Mountain Reservoir with

Muddy Creek Reservoir Operations

Metro Denver Lease Demand

Fish and Wildlife Service Draft MOU

Summary Table

7/13/89

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
	OCT	435	280	280	0	0.00
	NOV	332	325	325	0	0.00
	DEC	423	340	340	0	0.00
	JAN	456	340	340	0	0.00
	FEB	559	340	340	0	0.00
	MAR	864	311	311	0	0.00
1962	APR	802	350	350	0	0.00
	MAY	1375	89	89	0	0.00
	JUN	599	281	281	0	0.00
	JUL	845	388	388	0	0.00
	AUG	540	361	361	0	0.00
	SEPT	474	235	235	0	0.00
	OCT	1258	366	366	0	0.00
	NOV	800	350	350	0	0.00
	DEC	468	367	367	0	0.00
	JAN	200	367	367	0	0.00
	FEB	118	183	183	0	0.00
	MAR	101	137	137	0	0.00
1963	APR	140	193	193	0	0.00
	MAY	93	60	60	0	0.00
	JUN	85	60	60	0	0.00
	JUL	327	316	266	-50	-15.82
	AUG	351	435	310	-126	-28.88
	SEPT	396	273	158	-115	-42.03
	OCT	360	426	289	-136	-32.04
	NOV	187	298	298	0	0.00
	DEC	124	302	302	0	0.00
	JAN	122	302	302	0	0.00
	FEB	142	172	172	0	0.00
	MAR	170	145	145	0	0.00
1964	APR	162	147	147	0	0.00
	MAY	82	60	60	0	0.00
	JUN	80	60	60	0	0.00
	JUL	209	60	60	0	0.00
	AUG	270	152	106	-45	-29.94
	SEPT	500	274	53	-221	-80.56

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
	OCT	471	405	375	-30	-7.31
	NOV	216	288	288	0	0.00
	DEC	249	286	286	0	0.00
	JAN	247	286	286	0	0.00
	FEB	235	286	286	0	0.00
	MAR	246	292	292	0	0.00
1965	APR	401	215	215	0	0.00
	MAY	73	60	60	0	0.00
	JUN	72	243	243	0	0.00
	JUL	746	441	441	0	0.00
	AUG	869	498	498	0	0.00
	SEPT	412	301	301	0	0.00
	OCT	371	304	304	0	0.00
	NOV	372	372	372	0	0.00
	DEC	484	387	387	0	0.00
	JAN	427	387	387	0	0.00
	FEB	429	213	213	0	0.00
	MAR	437	171	171	0	0.00
1966	APR	251	174	174	0	0.00
	MAY	58	60	60	0	0.00
	JUN	76	60	60	0	0.00
	JUL	336	75	58	-17	-22.46
	AUG	498	311	241	-71	-22.66
	SEPT	644	649	581	-68	-10.54
	OCT	423	381	381	0	0.00
	NOV	234	252	252	0	0.00
	DEC	244	260	260	0	0.00
	JAN	291	260	260	0	0.00
	FEB	285	167	167	0	0.00
	MAR	282	171	171	0	0.00
1967	APR	360	215	215	0	0.00
	MAY	76	74	74	0	0.00
	JUN	56	60	60	0	0.00
	JUL	237	60	60	0	0.00
	AUG	544	306	236	-70	-22.74
	SEPT	457	225	131	-93	-41.51

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

East Slope Sales

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	Simulated Project Flows (cfs)	Change In Flows (cfs)	Percent Change
		1	2	3	4	5
	OCT	350	269	199	-70	-25.88
	NOV	298	346	346	0	0.00
	DEC	253	355	355	0	0.00
	JAN	246	355	355	0	0.00
	FEB	241	184	184	0	0.00
	MAR	258	127	127	0	0.00
1968	APR	528	103	103	0	0.00
	MAY	155	60	60	0	0.00
	JUN	143	60	60	0	0.00
	JUL	457	60	60	0	0.00
	AUG	546	184	184	0	0.00
	SEPT	478	274	274	0	0.00
	OCT	430	310	310	0	0.00
	NOV	295	372	372	0	0.00
	DEC	307	379	379	0	0.00
	JAN	301	379	379	0	0.00
	FEB	298	379	379	0	0.00
	MAR	299	139	139	0	0.00
1969	APR	369	150	150	0	0.00
	MAY	56	60	60	0	0.00
	JUN	594	60	60	0	0.00
	JUL	936	157	157	0	0.00
	AUG	596	419	419	0	0.00
	SEPT	437	307	307	0	0.00
	OCT	335	328	328	0	0.00
	NOV	370	362	362	0	0.00
	DEC	323	386	386	0	0.00
	JAN	317	386	386	0	0.00
	FEB	409	386	386	0	0.00
	MAR	463	251	251	0	0.00
1970	APR	416	264	264	0	0.00
	MAY	1145	154	154	0	0.00
	JUN	1530	154	154	0	0.00
	JUL	635	338	338	0	0.00
	AUG	651	194	194	0	0.00
	SEPT	461	250	250	0	0.00

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

East Slope Sales

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	Simulated Project Flows (cfs)	Change In Flows (cfs)	Percent Change
		1	2	3	4	5
	OCT	404	299	299	0	0.00
	NOV	345	383	383	0	0.00
	DEC	358	396	396	0	0.00
	JAN	358	396	396	0	0.00
	FEB	448	396	396	0	0.00
	MAR	467	274	274	0	0.00
1971	APR	570	282	282	0	0.00
	MAY	677	193	193	0	0.00
	JUN	801	193	193	0	0.00
	JUL	1243	360	360	0	0.00
	AUG	611	151	151	0	0.00
	SEPT	450	254	254	0	0.00
	OCT	416	306	306	0	0.00
	NOV	341	380	380	0	0.00
	DEC	328	396	396	0	0.00
	JAN	327	396	396	0	0.00
	FEB	336	396	396	0	0.00
	MAR	440	225	225	0	0.00
1972	APR	494	176	176	0	0.00
	MAY	450	60	60	0	0.00
	JUN	800	60	60	0	0.00
	JUL	584	255	255	0	0.00
	AUG	579	400	400	0	0.00
	SEPT	465	334	334	0	0.00
	OCT	368	304	304	0	0.00
	NOV	334	362	362	0	0.00
	DEC	294	379	379	0	0.00
	JAN	303	379	379	0	0.00
	FEB	302	379	379	0	0.00
	MAR	300	229	229	0	0.00
1973	APR	296	211	211	0	0.00
	MAY	451	101	101	0	0.00
	JUN	700	101	101	0	0.00
	JUL	1260	403	403	0	0.00
	AUG	571	224	224	0	0.00
	SEPT	430	215	215	0	0.00

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
	OCT	480	289	289	0	0.00
	NOV	453	382	382	0	0.00
	DEC	322	389	389	0	0.00
	JAN	305	389	389	0	0.00
	FEB	306	389	389	0	0.00
	MAR	450	274	274	0	0.00
1974	APR	491	258	258	0	0.00
	MAY	730	173	173	0	0.00
	JUN	1007	196	196	0	0.00
	JUL	767	331	331	0	0.00
	AUG	618	165	165	0	0.00
	SEPT	638	204	204	0	0.00
	OCT	339	300	300	0	0.00
	NOV	262	381	381	0	0.00
	DEC	261	388	388	0	0.00
	JAN	260	388	388	0	0.00
	FEB	254	388	388	0	0.00
	MAR	250	214	214	0	0.00
1975	APR	482	185	185	0	0.00
	MAY	368	74	74	0	0.00
	JUN	275	73	73	0	0.00
	JUL	776	405	405	0	0.00
	AUG	671	246	246	0	0.00
	SEPT	532	244	244	0	0.00
	OCT	446	272	272	0	0.00
	NOV	264	374	374	0	0.00
	DEC	257	380	380	0	0.00
	JAN	260	380	380	0	0.00
	FEB	290	380	380	0	0.00
	MAR	407	147	147	0	0.00
1976	APR	331	159	159	0	0.00
	MAY	335	60	60	0	0.00
	JUN	520	60	60	0	0.00
	JUL	249	134	134	0	0.00
	AUG	421	371	371	0	0.00
	SEPT	573	284	284	0	0.00

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
	OCT	375	316	316	0	0.00
	NOV	321	362	362	0	0.00
	DEC	307	368	368	0	0.00
	JAN	287	368	368	0	0.00
	FEB	193	178	178	0	0.00
	MAR	151	141	141	0	0.00
1977	APR	205	158	158	0	0.00
	MAY	59	95	95	0	0.00
	JUN	173	106	106	0	0.00
	JUL	564	418	228	-191	-45.57
	AUG	756	609	312	-297	-48.80
	SEPT	586	756	756	0	0.00
	OCT	302	352	352	0	0.00
	NOV	147	182	182	0	0.00
	DEC	172	192	192	0	0.00
	JAN	223	172	172	0	0.00
	FEB	250	169	169	0	0.00
	MAR	187	160	160	0	0.00
1978	APR	76	149	149	0	0.00
	MAY	58	60	60	0	0.00
	JUN	58	60	60	0	0.00
	JUL	468	60	60	0	0.00
	AUG	497	401	379	-22	-5.40
	SEPT	516	394	360	-34	-8.66
	OCT	306	353	353	0	0.00
	NOV	283	306	306	0	0.00
	DEC	283	302	302	0	0.00
	JAN	285	302	302	0	0.00
	FEB	289	302	302	0	0.00
	MAR	260	256	256	0	0.00
1979	APR	167	262	262	0	0.00
	MAY	59	68	68	0	0.00
	JUN	413	180	180	0	0.00
	JUL	1246	344	344	0	0.00
	AUG	401	302	302	0	0.00
	SEPT	478	246	246	0	0.00

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
	OCT	391	276	276	0	0.00
	NOV	292	374	374	0	0.00
	DEC	292	372	372	0	0.00
	JAN	295	372	372	0	0.00
	FEB	312	372	372	0	0.00
	MAR	363	235	235	0	0.00
1980	APR	498	170	170	0	0.00
	MAY	744	86	86	0	0.00
	JUN	999	86	86	0	0.00
	JUL	629	392	392	0	0.00
	AUG	529	187	187	0	0.00
	SEPT	530	244	244	0	0.00
	OCT	349	356	356	0	0.00
	NOV	289	349	349	0	0.00
	DEC	288	346	346	0	0.00
	JAN	219	346	346	0	0.00
	FEB	151	169	169	0	0.00
	MAR	160	146	146	0	0.00
1981	APR	253	274	274	0	0.00
	MAY	138	119	119	0	0.00
	JUN	54	76	76	0	0.00
	JUL	131	139	129	-10	-7.37
	AUG	451	601	259	-342	-56.87
	SEPT	366	440	440	0	0.00
	OCT	209	252	252	0	0.00
	NOV	169	229	229	0	0.00
	DEC	167	240	240	0	0.00
	JAN	210	240	240	0	0.00
	FEB	218	240	240	0	0.00
	MAR	210	171	171	0	0.00
1982	APR	251	163	163	0	0.00
	MAY	68	60	60	0	0.00
	JUN	329	60	60	0	0.00
	JUL	410	143	143	0	0.00
	AUG	634	404	404	0	0.00
	SEPT	388	287	287	0	0.00

Muddy Creek Reservoir Analysis
-- Blue River Below Green Moutain Reservoir --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Blue R. Flows (cfs)	Simulated Base Flows (cfs)	East Slope Sales: Simulated Project Flows (cfs)	East Slope Sales: Change In Flows (cfs)	East Slope Sales: Percent Change
		1	2	3	4	5
1962		644	303	303	0	0.00
1963		364	260	236	-24	-9.37
1964		201	200	166	-34	-16.79
1965		355	301	298	-3	-0.84
1966		365	264	251	-13	-4.95
1967		291	203	189	-14	-6.69
1968		330	198	192	-6	-2.98
1969		411	259	259	0	0.00
1970		588	287	287	0	0.00
1971		562	297	297	0	0.00
1972		464	282	282	0	0.00
1973		469	274	274	0	0.00
1974		548	286	286	0	0.00
1975		395	273	273	0	0.00
1976		363	249	249	0	0.00
1977		332	324	282	-41	-12.79
1978		247	196	192	-5	-2.37
1979		374	269	269	0	0.00
1980		490	264	264	0	0.00
1981		238	281	251	-30	-10.65
1982		272	207	207	0	0.00
Average		395	261	253	-8	-3.1
Maximum		644	324	303	0	0.0
Minimum		201	196	166	-41	-16.8

TABLE A.3

Muddy Creek Reservoir Analysis--Colorado River at Kremmling Gage

Metro Denver Lease Demand

Fish and Wildlife Service Draft MOU

Summary Table

7/13/89

Muddy Creek Reservoir Analysis
-- Colorado River At Kremmling Gage --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	1005	781	785	4	0.52
	NOV	754	815	819	4	0.52
	DEC	842	790	794	4	0.51
	JAN	909	812	816	4	0.50
	FEB	1025	817	822	5	0.55
	MAR	1394	838	842	4	0.49
1962	APR	3297	2387	2392	4	0.18
	MAY	4232	2340	2345	4	0.17
	JUN	2472	1554	1558	4	0.27
	JUL	2304	1842	1846	4	0.22
	AUG	1011	822	826	4	0.49
	SEPT	762	621	625	4	0.68
	OCT	1413	580	584	4	0.70
	NOV	1017	600	604	4	0.70
	DEC	669	581	585	4	0.70
	JAN	522	684	688	4	0.59
	FEB	503	568	573	5	0.79
	MAR	564	612	616	4	0.66
1963	APR	613	721	725	4	0.58
	MAY	695	355	359	4	1.14
	JUN	466	434	438	4	0.97
	JUL	539	632	636	4	0.64
	AUG	630	951	955	4	0.43
	SEPT	757	693	698	4	0.61
	OCT	641	740	744	4	0.55
	NOV	442	517	521	4	0.81
	DEC	277	449	453	4	0.91
	JAN	278	452	456	4	0.90
	FEB	305	330	334	5	1.37
	MAR	336	309	313	4	1.31
1964	APR	536	524	528	4	0.80
	MAY	1032	401	405	4	1.01
	JUN	765	386	390	4	1.09
	JUL	565	409	413	4	0.99
	AUG	819	618	622	4	0.66
	SEPT	889	724	728	4	0.58

Muddy Creek Reservoir Analysis
-- Colorado River At Kremmling Gage --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	654	638	642	4	0.64
	NOV	399	486	490	4	0.86
	DEC	411	454	458	4	0.89
	JAN	416	461	465	4	0.88
	FEB	390	446	450	5	1.01
	MAR	388	438	442	4	0.93
1965	APR	967	781	785	4	0.54
	MAY	1647	695	699	4	0.58
	JUN	1875	1327	1332	4	0.32
	JUL	1558	910	914	4	0.45
	AUG	1485	1103	1107	4	0.37
	SEPT	770	702	706	4	0.60
	OCT	762	761	765	4	0.53
	NOV	837	882	886	4	0.48
	DEC	904	837	841	4	0.49
	JAN	846	818	822	4	0.50
	FEB	853	649	653	5	0.69
	MAR	956	703	707	4	0.58
1966	APR	617	571	575	4	0.74
	MAY	720	312	316	4	1.30
	JUN	379	356	360	4	1.18
	JUL	795	533	537	4	0.76
	AUG	787	678	682	4	0.60
	SEPT	843	922	926	4	0.46
	OCT	631	610	614	4	0.67
	NOV	432	446	450	4	0.94
	DEC	381	391	395	4	1.04
	JAN	420	384	388	4	1.06
	FEB	448	325	329	5	1.39
	MAR	589	480	484	4	0.85
1967	APR	838	752	756	4	0.56
	MAY	863	334	338	4	1.22
	JUN	1048	401	405	4	1.05
	JUL	849	547	551	4	0.74
	AUG	862	774	778	4	0.53
	SEPT	755	693	697	4	0.61

Muddy Creek Reservoir Analysis
-- Colorado River At Kremmling Gage --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	604	626	630	4	0.65
	NOV	558	619	623	4	0.68
	DEC	518	622	626	4	0.65
	JAN	534	649	653	4	0.63
	FEB	552	504	508	5	0.89
	MAR	546	412	416	4	0.99
1968	APR	938	508	512	4	0.83
	MAY	951	610	614	4	0.67
	JUN	1314	569	574	4	0.74
	JUL	922	520	524	4	0.78
	AUG	1049	675	680	4	0.60
	SEPT	804	738	742	4	0.57
	OCT	748	679	683	4	0.60
	NOV	628	720	724	4	0.58
	DEC	593	667	671	4	0.61
	JAN	586	670	674	4	0.61
	FEB	580	659	663	5	0.68
	MAR	584	430	434	4	0.95
1969	APR	943	659	664	4	0.64
	MAY	1176	575	580	4	0.71
	JUN	1961	821	825	4	0.51
	JUL	1545	666	670	4	0.61
	AUG	883	802	806	4	0.51
	SEPT	733	744	749	4	0.56
	OCT	732	791	795	4	0.51
	NOV	736	746	751	4	0.56
	DEC	745	828	833	4	0.49
	JAN	627	717	721	4	0.57
	FEB	695	684	689	5	0.66
	MAR	778	578	582	4	0.70
1970	APR	1036	902	906	4	0.47
	MAY	4014	2348	2352	4	0.17
	JUN	3615	1633	1637	4	0.26
	JUL	1505	1117	1121	4	0.36
	AUG	1088	645	649	4	0.63
	SEPT	770	727	731	4	0.58

Muddy Creek Reservoir Analysis
-- Colorado River At Kremmling Gage --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	834	783	787	4	0.52
	NOV	800	888	892	4	0.47
	DEC	644	709	713	4	0.57
	JAN	642	703	707	4	0.58
	FEB	740	711	715	5	0.63
	MAR	896	712	717	4	0.57
1971	APR	1543	1044	1048	4	0.40
	MAY	2882	1792	1796	4	0.23
	JUN	3763	2549	2553	4	0.16
	JUL	2290	1246	1250	4	0.33
	AUG	1055	584	588	4	0.70
	SEPT	810	704	708	4	0.60
	OCT	727	674	678	4	0.60
	NOV	761	822	826	4	0.51
	DEC	620	702	706	4	0.58
	JAN	567	651	655	4	0.63
	FEB	619	689	693	5	0.65
	MAR	845	657	661	4	0.62
1972	APR	993	676	680	4	0.62
	MAY	1659	702	706	4	0.58
	JUN	2047	749	754	4	0.56
	JUL	1011	677	681	4	0.60
	AUG	930	825	829	4	0.49
	SEPT	755	765	769	4	0.55
	OCT	655	636	640	4	0.64
	NOV	759	800	804	4	0.53
	DEC	527	620	624	4	0.66
	JAN	519	601	605	4	0.68
	FEB	523	604	609	5	0.74
	MAR	541	469	473	4	0.87
1973	APR	683	605	609	4	0.69
	MAY	2394	1361	1365	4	0.30
	JUN	2872	1667	1671	4	0.25
	JUL	2913	1863	1867	4	0.22
	AUG	1201	845	849	4	0.48
	SEPT	854	748	752	4	0.56

Muddy Creek Reservoir Analysis
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Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	903	733	737	4	0.55
	NOV	835	781	785	4	0.54
	DEC	611	691	695	4	0.59
	JAN	596	695	699	4	0.59
	FEB	591	678	683	5	0.66
	MAR	887	729	733	4	0.56
1974	APR	1187	957	961	4	0.44
	MAY	3527	2301	2305	4	0.18
	JUN	3289	1872	1876	4	0.22
	JUL	1555	1097	1101	4	0.37
	AUG	1007	582	586	4	0.70
	SEPT	996	669	673	4	0.63
	OCT	790	789	793	4	0.52
	NOV	631	764	768	4	0.55
	DEC	521	654	659	4	0.62
	JAN	513	646	650	4	0.63
	FEB	536	671	676	5	0.67
	MAR	562	528	532	4	0.77
1975	APR	899	606	611	4	0.69
	MAY	1523	852	856	4	0.48
	JUN	1825	1084	1089	4	0.39
	JUL	1591	1047	1051	4	0.39
	AUG	1103	724	728	4	0.56
	SEPT	862	716	720	4	0.59
	OCT	768	626	630	4	0.65
	NOV	701	818	822	4	0.51
	DEC	575	700	705	4	0.58
	JAN	563	689	693	4	0.59
	FEB	598	690	695	5	0.65
	MAR	799	539	543	4	0.75
1976	APR	782	612	616	4	0.69
	MAY	1292	685	690	4	0.59
	JUN	1179	619	624	4	0.68
	JUL	662	541	545	4	0.75
	AUG	805	810	814	4	0.50
	SEPT	845	709	713	4	0.59

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Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	653	663	667	4	0.61
	NOV	585	639	643	4	0.66
	DEC	573	631	635	4	0.64
	JAN	488	566	570	4	0.72
	FEB	440	422	426	5	1.07
	MAR	331	322	326	4	1.26
1977	APR	639	603	607	4	0.70
	MAY	477	506	510	4	0.80
	JUN	519	500	504	4	0.84
	JUL	923	969	973	4	0.42
	AUG	1031	1095	1099	4	0.37
	SEPT	923	968	973	4	0.43
	OCT	556	638	642	4	0.64
	NOV	352	395	400	4	1.06
	DEC	363	403	407	4	1.01
	JAN	424	389	393	4	1.05
	FEB	452	378	382	5	1.19
	MAR	465	448	452	4	0.91
1978	APR	774	691	695	4	0.61
	MAY	1750	745	749	4	0.55
	JUN	1970	1171	1175	4	0.36
	JUL	1138	546	550	4	0.74
	AUG	835	825	829	4	0.49
	SEPT	896	853	858	4	0.49
	OCT	746	785	789	4	0.52
	NOV	740	743	747	4	0.57
	DEC	525	553	557	4	0.74
	JAN	514	550	554	4	0.74
	FEB	509	536	540	5	0.84
	MAR	462	478	482	4	0.85
1979	APR	725	826	830	4	0.51
	MAY	2139	1418	1422	4	0.29
	JUN	2443	1606	1610	4	0.26
	JUL	2113	1076	1080	4	0.38
	AUG	948	839	843	4	0.48
	SEPT	826	679	683	4	0.62

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Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
	OCT	775	659	663	4	0.62
	NOV	592	659	663	4	0.64
	DEC	573	665	669	4	0.61
	JAN	522	627	631	4	0.65
	FEB	534	613	617	5	0.73
	MAR	568	458	462	4	0.89
1980	APR	1028	706	710	4	0.60
	MAY	2869	1532	1536	4	0.27
	JUN	2643	1126	1130	4	0.37
	JUL	1191	948	952	4	0.43
	AUG	930	634	638	4	0.64
	SEPT	802	646	651	4	0.65
	OCT	591	635	639	4	0.64
	NOV	525	596	600	4	0.71
	DEC	498	564	568	4	0.72
	JAN	401	523	527	4	0.78
	FEB	353	366	371	5	1.23
	MAR	372	357	361	4	1.14
1981	APR	558	650	654	4	0.65
	MAY	659	585	590	4	0.69
	JUN	564	562	566	4	0.75
	JUL	602	582	586	4	0.70
	AUG	972	1053	1057	4	0.39
	SEPT	842	761	766	4	0.55
	OCT	576	539	543	4	0.75
	NOV	455	490	494	4	0.86
	DEC	376	444	448	4	0.92
	JAN	451	484	488	4	0.84
	FEB	429	448	452	5	1.00
	MAR	403	374	378	4	1.09
1982	APR	573	522	527	4	0.80
	MAY	1113	583	587	4	0.70
	JUN	1592	771	775	4	0.54
	JUL	1221	868	872	4	0.47
	AUG	1133	892	896	4	0.46
	SEPT	841	753	758	4	0.56

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Water Year	Month	Historic Kremmling Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change (%)
		1	2	3	4	5
1962		1671	1217	1212	-6	-0.46
1963		700	628	626	-2	-0.39
1964		575	521	498	-23	-4.43
1965		917	742	694	-49	-6.54
1966		775	679	686	7	1.08
1967		677	532	512	-21	-3.89
1968		775	610	588	-22	-3.57
1969		914	680	686	7	0.99
1970		1365	985	978	-6	-0.66
1971		1410	1042	1043	2	0.15
1972		962	722	727	5	0.69
1973		1208	910	905	-5	-0.60
1974		1335	989	997	7	0.76
1975		948	764	765	1	0.12
1976		798	676	679	3	0.42
1977		633	663	668	5	0.77
1978		832	675	623	-51	-7.59
1979		1061	852	852	-1	-0.09
1980		1088	781	771	-10	-1.30
1981		580	615	613	-2	-0.34
1982		765	634	603	-31	-4.82
Average		952	758	749	-9	-1.2
Maximum		1671	1217	1212	7	1.1
Minimum		575	521	498	-51	-7.6

TABLE A.4

Muddy Creek Reservoir Analysis--Colorado River at Dotsero Gage

Metro Denver Lease Demand

Fish and Wildlife Service Draft MOU

Summary Table

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Muddy Creek Reservoir Analysis
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Metro Denver Lease

Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Simulated Project Flows (cfs)	Change In Flows (cfs)	Percent Change
		1	2	3	4	5
	OCT	1947	1789	1725	-64	-3.59
	NOV	1366	1423	1423	-0	-0.00
	DEC	1229	1173	1173	0	0.00
	JAN	1264	1165	1165	0	0.00
	FEB	1603	1397	1397	0	0.00
	MAR	1961	1408	1408	0	0.00
1962	APR	5601	4794	4695	-100	-2.08
	MAY	8600	6718	6716	-1	-0.02
	JUN	7243	6340	6337	-3	-0.05
	JUL	4598	4144	4142	-1	-0.03
	AUG	1737	1546	1546	1	0.03
	SEPT	1185	995	1045	50	5.06
	OCT	2038	1194	1207	12	1.05
	NOV	1664	1230	1243	13	1.06
	DEC	1100	996	1009	13	1.30
	JAN	835	994	994	-0	-0.00
	FEB	887	954	954	-0	-0.00
	MAR	961	1011	1011	0	0.00
1963	APR	1300	1411	1411	0	0.00
	MAY	2461	2233	2129	-104	-4.66
	JUN	1923	1906	1903	-3	-0.16
	JUL	1021	1122	1121	-1	-0.12
	AUG	1217	1536	1536	1	0.03
	SEPT	1219	1156	1156	-0	-0.01
	OCT	967	1068	1067	-1	-0.05
	NOV	875	946	946	-0	-0.00
	DEC	589	758	758	-0	-0.00
	JAN	563	734	734	0	0.00
	FEB	571	597	597	0	0.00
	MAR	610	585	585	-0	-0.00
1964	APR	1039	1030	1030	0	0.00
	MAY	3179	2745	2556	-189	-6.89
	JUN	3400	3173	3032	-141	-4.44
	JUL	1544	1395	1394	-1	-0.10
	AUG	1352	1149	1150	1	0.05
	SEPT	1177	1013	1013	-0	-0.01

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Metro Denver Lease

Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Simulated Project Flows (cfs)	Change In Flows (cfs)	Percent Change
		1	2	3	4	5
	OCT	1015	1001	1001	-1	-0.05
	NOV	814	896	896	0	0.00
	DEC	789	829	829	-0	-0.00
	JAN	743	786	786	0	0.00
	FEB	731	789	789	0	0.00
	MAR	755	808	808	0	0.00
1965	APR	1711	1528	1528	-0	-0.00
	MAY	4123	3514	3178	-336	-9.56
	JUN	7055	6634	6519	-116	-1.75
	JUL	4189	3550	3549	-1	-0.04
	AUG	2735	2352	2352	1	0.02
	SEPT	1535	1419	1469	50	3.55
	OCT	1517	1519	1518	-0	-0.03
	NOV	1405	1445	1445	0	0.00
	DEC	1389	1319	1319	0	0.00
	JAN	1223	1192	1192	0	0.00
	FEB	1223	1020	1020	0	0.00
	MAR	1434	1185	1185	0	0.00
1966	APR	1365	1323	1323	-0	-0.00
	MAY	2760	2425	2359	-66	-2.71
	JUN	1706	1697	1694	-3	-0.18
	JUL	1404	1150	1149	-1	-0.12
	AUG	1237	1127	1128	1	0.05
	SEPT	1142	1222	1221	-0	-0.01
	OCT	1047	1029	1029	-1	-0.05
	NOV	811	820	820	0	0.00
	DEC	659	665	665	-0	-0.00
	JAN	734	695	695	0	0.00
	FEB	751	629	629	0	0.00
	MAR	1031	924	924	0	0.00
1967	APR	1580	1497	1497	-0	-0.00
	MAY	2641	2262	2120	-142	-6.29
	JUN	3927	3340	3293	-47	-1.42
	JUL	2051	1756	1755	-1	-0.08
	AUG	1288	1198	1199	1	0.04
	SEPT	1271	1210	1210	-0	-0.01

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Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
	OCT	1084	1108	1108	-1	-0.05
	NOV	1004	1061	1061	0	0.00
	DEC	888	988	988	0	0.00
	JAN	779	891	891	0	0.00
	FEB	882	835	835	-0	-0.00
	MAR	913	781	781	-0	-0.00
1968	APR	1453	1027	1027	0	0.00
	MAY	2661	2526	2328	-198	-7.83
	JUN	5689	5015	4956	-59	-1.18
	JUL	2137	1743	1741	-1	-0.08
	AUG	2075	1700	1701	1	0.03
	SEPT	1311	1195	1245	50	4.21
	OCT	1250	1183	1183	-0	-0.04
	NOV	1103	1191	1191	0	0.00
	DEC	961	1032	1032	0	0.00
	JAN	965	1046	1046	-0	-0.00
	FEB	930	1010	1010	-0	-0.00
	MAR	988	837	837	-0	-0.00
1969	APR	1988	1772	1707	-65	-3.66
	MAY	4063	3471	3469	-1	-0.04
	JUN	4253	3128	3125	-3	-0.10
	JUL	2879	2007	2006	-1	-0.07
	AUG	1477	1394	1395	1	0.04
	SEPT	1251	1214	1264	50	4.15
	OCT	1425	1486	1486	-1	-0.03
	NOV	1280	1287	1287	0	0.00
	DEC	1066	1147	1147	0	0.00
	JAN	960	1048	1048	-0	-0.00
	FEB	1148	1139	1139	-0	-0.00
	MAR	1221	1024	1024	-0	-0.00
1970	APR	1653	1523	1523	-0	-0.00
	MAY	8512	6926	6854	-71	-1.03
	JUN	7643	5676	5673	-3	-0.05
	JUL	3227	2846	2845	-1	-0.05
	AUG	1833	1388	1388	1	0.04
	SEPT	1598	1508	1558	50	3.34

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Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
	OCT	1579	1531	1530	-1	-0.03
	NOV	1352	1436	1436	0	0.00
	DEC	1000	1061	1061	-0	-0.00
	JAN	1034	1092	1092	-0	-0.00
	FEB	1200	1172	1172	0	0.00
	MAR	1469	1288	1288	-0	-0.00
1971	APR	2684	2258	2188	-71	-3.12
	MAY	5533	4452	4451	-1	-0.03
	JUN	8216	7017	7014	-3	-0.04
	JUL	4079	3043	3042	-1	-0.04
	AUG	1755	1282	1282	1	0.04
	SEPT	1572	1420	1470	50	3.54
	OCT	1209	1158	1158	-1	-0.04
	NOV	1206	1263	1263	0	0.00
	DEC	1133	1211	1211	0	0.00
	JAN	1049	1130	1130	-0	-0.00
	FEB	1074	1145	1145	-0	-0.00
	MAR	1385	1200	1200	-0	-0.00
1972	APR	1807	1493	1493	0	0.00
	MAY	3721	2843	2772	-71	-2.51
	JUN	5675	4393	4390	-3	-0.07
	JUL	1958	1632	1631	-1	-0.08
	AUG	1450	1343	1343	1	0.04
	SEPT	1378	1339	1389	50	3.76
	OCT	1371	1354	1354	-0	-0.04
	NOV	1397	1433	1433	-0	-0.00
	DEC	1066	1155	1155	0	0.00
	JAN	1022	1101	1101	1	0.07
	FEB	1015	1096	1099	3	0.23
	MAR	1110	1040	1040	-0	-0.00
1973	APR	1283	1208	1208	-0	-0.00
	MAY	5164	4218	4138	-80	-1.89
	JUN	6996	5806	5802	-3	-0.05
	JUL	5108	4067	4065	-1	-0.03
	AUG	2137	1780	1780	1	0.03
	SEPT	1398	1247	1297	50	4.04

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Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
	OCT	1396	1229	1228	-0	-0.04
	NOV	1266	1208	1208	-0	-0.00
	DEC	1132	1209	1209	-0	-0.00
	JAN	1048	1144	1144	0	0.00
	FEB	1078	1166	1166	0	0.00
	MAR	1462	1307	1307	-0	-0.00
1974	APR	2050	1823	1823	-0	-0.00
	MAY	7889	6736	6670	-66	-0.98
	JUN	6774	5372	5369	-3	-0.06
	JUL	2879	2429	2427	-1	-0.06
	AUG	1700	1273	1273	1	0.04
	SEPT	1467	1092	1144	52	4.78
	OCT	1312	1314	1314	-1	-0.04
	NOV	1148	1276	1276	0	0.00
	DEC	1035	1164	1164	0	0.00
	JAN	1040	1170	1170	-0	-0.00
	FEB	1110	1247	1247	-0	-0.00
	MAR	1067	1036	1036	0	0.00
1975	APR	1573	1284	1284	-0	-0.00
	MAY	3527	2938	2865	-73	-2.48
	JUN	6346	5620	5617	-3	-0.05
	JUL	4518	3982	3981	-1	-0.03
	AUG	1953	1573	1573	1	0.03
	SEPT	1450	1255	1305	50	4.01
	OCT	1351	1212	1212	-1	-0.04
	NOV	1266	1379	1379	-0	-0.00
	DEC	1050	1172	1172	-0	-0.00
	JAN	1006	1128	1128	-0	-0.00
	FEB	1141	1236	1236	-0	-0.00
	MAR	1302	1044	1044	0	0.00
1976	APR	1544	1377	1377	-0	-0.00
	MAY	3547	3019	2948	-71	-2.36
	JUN	3808	3263	3260	-3	-0.09
	JUL	1859	1746	1745	-1	-0.08
	AUG	1464	1466	1467	1	0.04
	SEPT	1381	1196	1246	50	4.21

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Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
	OCT	1192	1205	1205	-1	-0.04
	NOV	1003	1053	1053	0	0.00
	DEC	854	908	908	-0	-0.00
	JAN	816	890	892	1	0.14
	FEB	786	770	770	-0	-0.00
	MAR	630	624	624	0	0.00
1977	APR	1123	1090	1090	-0	-0.00
	MAY	1437	1473	1472	-1	-0.10
	JUN	1631	1627	1624	-3	-0.19
	JUL	1311	1360	1358	-1	-0.10
	AUG	1371	1433	1434	1	0.04
	SEPT	1232	1278	1278	-0	-0.01
	OCT	960	1045	1044	-1	-0.05
	NOV	677	719	719	-0	-0.00
	DEC	726	765	765	0	0.00
	JAN	758	722	722	-0	-0.00
	FEB	745	674	674	0	0.00
	MAR	810	795	795	-0	-0.00
1978	APR	1604	1525	1525	-0	-0.00
	MAY	4178	3585	3181	-403	-11.25
	JUN	7488	6901	6702	-199	-2.89
	JUL	3075	2492	2490	-1	-0.05
	AUG	1428	1416	1417	1	0.04
	SEPT	1331	1243	1293	50	4.05
	OCT	1216	1256	1256	-1	-0.04
	NOV	1223	1222	1222	-0	-0.00
	DEC	814	838	838	-0	-0.00
	JAN	755	788	788	0	0.00
	FEB	822	851	851	-0	-0.00
	MAR	906	925	925	-0	-0.00
1979	APR	1422	1527	1527	-0	-0.00
	MAY	5412	4825	4699	-126	-2.61
	JUN	7841	7019	7016	-3	-0.04
	JUL	4415	3387	3386	-1	-0.04
	AUG	1652	1541	1542	1	0.03
	SEPT	1300	1101	1157	56	5.05

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Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
	OCT	1249	1136	1136	-0	-0.04
	NOV	1108	1171	1171	-0	-0.00
	DEC	1081	1169	1169	0	0.00
	JAN	1021	1122	1122	0	0.00
	FEB	1026	1106	1106	-0	-0.00
	MAR	1020	913	913	-0	-0.00
1980	APR	1645	1326	1326	-0	-0.00
	MAY	5682	4429	4353	-76	-1.73
	JUN	7134	5631	5628	-3	-0.05
	JUL	2462	2228	2226	-1	-0.06
	AUG	1433	1135	1136	1	0.05
	SEPT	1341	1136	1186	50	4.43
	OCT	1053	1099	1099	-1	-0.05
	NOV	981	1048	1048	0	0.00
	DEC	921	984	984	-0	-0.00
	JAN	753	873	873	0	0.00
	FEB	663	678	678	0	0.00
	MAR	668	656	656	-0	-0.00
1981	APR	1097	1191	1191	-0	-0.00
	MAY	1735	1739	1668	-71	-4.10
	JUN	2553	2566	2563	-3	-0.12
	JUL	1352	1333	1331	-1	-0.10
	AUG	1336	1415	1415	1	0.04
	SEPT	1305	1225	1225	-0	-0.01
	OCT	1037	1003	1003	-1	-0.05
	NOV	849	881	881	-0	-0.00
	DEC	726	791	791	0	0.00
	JAN	739	769	769	0	0.00
	FEB	741	762	762	-0	-0.00
	MAR	858	831	831	-0	-0.00
1982	APR	1257	1209	1209	0	0.00
	MAY	3412	3148	2890	-259	-8.21
	JUN	5833	5153	5024	-129	-2.50
	JUL	3584	3239	3238	-1	-0.04
	AUG	2056	1813	1813	1	0.03
	SEPT	1551	1452	1464	12	0.83

Muddy Creek Reservoir Analysis
-- Colorado River At Dotsero Gage --
-- Fish and Wildlife Service Draft MOU --

Water Year	Month	Historic Dotsero Flows (cfs)	Simulated Base Flows (cfs)	Metro Denver Lease: Simulated Project Flows (cfs)	Metro Denver Lease: Change In Flows (cfs)	Metro Denver Lease: Percent Change
		1	2	3	4	5
1962		3200	2745	2736	-9	-0.33
1963		1388	1314	1308	-6	-0.45
1964		1325	1269	1242	-26	-2.09
1965		2188	2012	1960	-52	-2.58
1966		1487	1388	1392	4	0.28
1967		1484	1337	1313	-24	-1.80
1968		1740	1573	1548	-25	-1.60
1969		1846	1610	1613	3	0.20
1970		2638	2256	2246	-10	-0.43
1971		2625	2255	2253	-2	-0.07
1972		1921	1679	1680	2	0.09
1973		2430	2130	2122	-9	-0.40
1974		2519	2171	2176	4	0.20
1975		2177	1990	1988	-3	-0.13
1976		1728	1604	1603	-1	-0.04
1977		1117	1144	1146	2	0.13
1978		1983	1824	1772	-53	-2.88
1979		2320	2110	2106	-4	-0.19
1980		2186	1877	1863	-14	-0.73
1981		1203	1236	1229	-6	-0.50
1982		1891	1758	1724	-34	-1.93
Average		1971	1775	1763	-12	-0.7
Maximum		3200	2745	2736	4	0.3
Minimum		1117	1144	1146	-53	-2.9

APPENDIX B

Proposed Changes to the Bureau of Land Management Kremmling Resource Management Plan

d. Are lands where Bureau initiated forest management opportunities are limited because of tract size, stand size, access difficulties, or adverse sites.

e. Have no resource values of major significance.

Acquire lands for public ownership which would benefit overall public land management. Site-specific environmental assessments would consider acquisition needs.

Land considered for acquisition would include:

1. Inholdings of private, state, or other Federal land within large blocks of public lands.

2. Land adjacent to intensively managed tracts of public land where overall program management would be enhanced, such as lands adjacent to special recreation management areas, intensively managed forest sites, grazing allotments, or important mineral areas.

3. Lands of mineral importance where the Federal minerals are overlain by state or private surface ownerships.

Refer to Ownership Consolidation-Land Tenure Adjustment in Appendix C.

c. Special Implementation Needs

Support needs include appraisal work, records notation, document preparation, cadastral surveys, mineral reports, water rights reports and cultural resource inventories. The majority of this support does not exist at the resource area level and would require CDO and CSO support. Consultation would be required with such entities as the general public, local government, other agencies as necessary.

d. Implementation/Priorities

Actions will be handled based on public requests and proposals. Generally, Good Neighbor Program actions will be considered a priority, such as Recreation and Public Purpose actions and exchanges which benefit both the public and the government.

e. Monitoring/Schedule

Not Applicable

Delete and replace with amendment in Section 1.9.2

C. SUPPORT

Support will be needed to evaluate and consider visual resources during the environmental assessment process and to manage visual resources in regard to actions proposed. The objective of the visual resource program is to ~~maintain the existing limited management level for sensitive Class II areas (those areas seen from major travel routes and adjacent to intensive managed recreation areas)~~.

Transportation management, utility and communication facility management and fire management are programs which truly support the day-to-day administration of other resource area programs. For example, communication facility authorization provides a service to all administrative program functions as well as interagency and community needs. Fire management activities support range, wildlife, and forestry programs and may also serve the local community and other agencies.

Support will be necessary to implement many of the projects under this plan. Cadastral support could be needed for lands and realty actions, forestry and wildlife projects, range improvement projects and transportation and access problems. Engineering support would be required for watershed projects, wildlife and forestry project implementation and range improvement projects. Appraisal staff support will be needed to assess lease, permit and grant valuations for realty actions. Cultural resource support will be needed to evaluate impacts to cultural resources for all surface-disturbing projects proposed under this plan. Support from all resources will be needed to complete environmental assessments on projects proposed under this plan.

Material Sales - Sales of mineral materials, such as sand and gravel, would not be allowed.

Realty Actions - Major realty actions, such as rights-of-way, disposals, etc., would be excluded.

Community Expansion - Priority areas would not be available for community expansion.

Wilderness - Cultural sites in priority areas would not meet the criteria for wilderness designation.

To be deleted - See discussion Section 1.9.2.

VISUAL RESOURCES

Visual sensitive areas are included in visual resources priority lands. All such areas have been identified as Class II in the visual resource inventory on file in the Kremmling Resource Area Office. These are areas of special concern because of their inherent scenic value and/or sensitivity due to their location along major travel routes, such as highways and the upper Colorado River. Protection and maintenance of visual quality would be achieved through the imposition of restrictions on other resource uses or activities to reduce the degree of contrast with the surrounding landscape.

Compatible Uses

Generally, all uses of the public lands can be made compatible with sensitive visual areas through one or more of the following measures:

1. Redesign of the project
2. Screening of buffering
3. Use of nonreflective paint materials
4. Rapid restoration and revegetation of surface disturbance

The following use would be compatible:

Oil and Gas - Lands would remain open to oil and gas leasing. No-surface-occupancy stipulations may be used to protect areas of high visibility.

Minerals - Lands would remain open to location of mining claims. Restrictions necessary to meet contrast rating requirements would be imposed.

Livestock Grazing - Livestock grazing would be allowed. Range improvement projects would be allowed, subject to meeting contrast rating requirements.

Forest Products - Harvesting of forest products, either under intensive or limited management, could occur as long as contrast rating requirements could be met.

Soils, Watershed, and Water - Management of these resources would be allowed. Any developments would have to meet contrast rating requirements.

Wildlife - Wildlife habitats, both aquatic and terrestrial, could be intensively managed by wildlife. Any development would have to meet contrast rating requirements.

Cultural Resources - Development and management of cultural resources would be allowed. Any interpretive facilities or excavations would be subject to meeting contrast rating requirements.

Realty Actions - Actions, such as powerline rights-of-way, would be allowed if contrast rating requirements could be met.

Community Expansion - Use of public lands for open space and parks would be allowed.

Excluded Uses

Uses that could not meet the criteria for Class II visual areas after application of mitigating measures would be excluded from sensitive visual areas. In addition, the following exclusions would apply:

Coal - Lands would not be considered for coal leasing.

Wilderness - Visual resource priority lands would not meet the criteria for wilderness designation.

Mineral Materials - The sale of mineral materials, such as sand and gravel, would be excluded.

COMMUNITY EXPANSION

Federal lands suitable for the enhancement of state and local governmental units for community expansion and development purposes are included in community expansion priority areas. Lands would be

APPENDIX C

U. S. Fish and Wildlife Service Letter

February 14, 1989

SUBJECT:
DRAFT FINAL MITIGATION PLAN
FOR THE MUDDY CREEK RESERVOIR PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
COLORADO FIELD OFFICE
730 SIMMS STREET
ROOM 292
GOLDEN, COLORADO 80401

IN REPLY REFER TO:

FEB 14 1989

MEMORANDUM

TO: Resource Area Manager, Bureau of Land Management, Kremmling Resource Area, Kremmling, Colorado

FROM: State Supervisor, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Golden, Colorado

SUBJECT: Draft Final Mitigation Plan for the Muddy Creek Reservoir Project

We have reviewed the Draft Final Mitigation Plan for the Muddy Creek Reservoir Project and offer the following comments for your consideration. Our major concerns with the subject document are with wetlands, specifically the inconsistency in the Habitat Evaluation Procedures (HEP) results, the adequacy of the general wetlands habitat model, and the adequacy of the number of acres proposed to replace habitat values lost in the wet sub-irrigated meadow of the inundation area.

The Fish And Wildlife Service (Service) believes that the HEP studies conducted for this project have been very valuable in comparing the two reservoir site alternatives. Study results clearly show wildlife habitat values at the Rock Creek site are significantly greater than habitat values at the Muddy Creek site.

The HEP analysis conducted for wetlands has produced a series of documents showing study results. The data presented in these documents is not consistent with the latest mitigation plan. We have identified some discrepancies between these documents in Attachment A that should be explained and documented.

The general wetlands habitat model presented in the Draft Final Mitigation Plan has not been adequately documented or verified. Past attempts to develop cover-type models by the National Ecology Research Center of the Fish and Wildlife Service that are not based on wildlife species information have not been successful. We commend efforts to try to develop a model to represent the wet sub-irrigated meadow habitat; however, the Service finds that the model as presented is not acceptable.

The elk model was recommended primarily for impact assessment at the Rock Creek site, which includes substantial acreage of willow riparian habitat. However, when this model was applied to the Muddy Creek wet sub-irrigated meadow, problems result because of the lack of shrubs. The elk model, as

applied, was driven by the shrub component of the model. Therefore, we question whether the HEP study, as presented, adequately represents predicted impacts and mitigation results at Muddy Creek.

We do believe that the willow riparian habitat was well represented by the models used (yellow warbler and beaver), and adequate mitigation for this habitat type has been proposed in the Draft Final Mitigation Plan. However, at Muddy Creek the willow riparian habitat represents a very small percentage of the total wetland acreage that would be lost.

The Service finds that the Draft Final Wetlands Mitigation Plan does not insure that no net loss of wetlands would occur. The end result from the HEP analysis is a mitigation ratio of approximately one-half acre of mitigation for every acre lost. Furthermore, the mitigation site is a wetland now so the mitigation is enhancement of existing wetlands. No wetlands would be created or restored. We are concerned that additional acres of mitigation lands may be necessary. During a February 2, 1989, meeting on the Muddy Creek Project, some possible additional options for wetland mitigation were discussed. The Service recommends that the Bureau of Land Management and Corps of Engineers examine alternatives for wetland mitigation. We recommend that the following alternatives be considered.

1. An adequate HEP study be conducted that would accurately model the wet sub-irrigated meadow habitat.

2. An acreage ratio be developed to adequately mitigate the wetland loss incurred by project implementation.

The first alternative could be very time consuming and expensive, especially considering the difficulty already encountered in finding or developing appropriate wetland models. The second alternative should consider the mitigation potential of proposed mitigation sites and whether the proposed mitigation is hydrologic restoration, wetland creation, or vegetative restoration.

The Service appreciates the opportunity to review the Draft Final Mitigation Plan and the opportunity to hold a meeting to address concerns regarding the Muddy Creek Project. We realize a great deal of effort has been put into the mitigation plan, however, we question the adequacy of the wetland mitigation. Adequate wetlands mitigation is essential to insure that no net loss of wetlands occurs with project implementation. Therefore, we believe the examination of additional mitigation alternatives will be worth the effort.

If we can be of further assistance, please call me at (303) 236-2675.

Sincerely,

LeRoy W. Carlson

LeRoy W. Carlson
State Supervisor

cc: Colorado River Water Conservation District
BIO/WEST, Inc., Logan, Utah
CDOW, Grand Junction, CO
COE, Grand Junction, CO
EPA, Denver, CO
Forest Service, Steamboat Springs, CO
FWS/FWE, Salt Lake City, UT
FWS/FWE, Grand Junction, CO
FWS/FWE, Lakewood, CO

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